

Learning Objectives

- **State purposes of ARIDE eye examinations**
- **Administer LOC test**
- **Describe the difference in pupil size**

Upon successfully completing this session, the participant will be able to:

- State the purposes of various eye examinations used in the Advanced Roadside Impaired Driving Enforcement (ARIDE) Curriculum, which includes Horizontal Gaze Nystagmus (HGN), Vertical Gaze Nystagmus (VGN), and Lack of Convergence (LOC)
- LOC test: How to administer properly and describe what the results indicate
- Describe the difference in pupil size

Learning Objectives

- **Administer Modified Romberg Balance test**
- **Administer Finger-to-Nose test**
- **Explain relationship between eye examinations and seven drug categories**

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- Modified Romberg Balance (MRB) test: How to administer properly and describe what the results indicate
 - Finger-to-Nose (FTN) test: How to administer properly and describe what the results indicate
 - Explain the relationship between eye examinations and the seven drug categories

CONTENT SEGMENTS

- A. Various Eye Examinations Used in the ARIDE Curriculum
- B. Discuss Lack of Convergence
- C. Describe the Difference in Pupil Size
- D. Modified Romberg Balance test
- E. Finger-to-Nose test
- F. Relationship between eye examinations and the seven categories

LEARNING ACTIVITIES

Instructor-Led Presentation
Participant Practice Session

Eye Examinations



A. Various Eye Examinations Used in the ARIDE Curriculum

The eyes can disclose indicators of drug impairment or medical conditions.

HGN is an excellent indicator of possible alcohol impairment, but there are other drugs that will also cause HGN. Drug categories that will cause HGN include Central Nervous System (CNS) Depressants, Inhalants, and Dissociative Anesthetics (DID) drugs. The same drugs that cause HGN may cause VGN. There is no known drug that will cause VGN without causing at least four clues of HGN.

In addition to HGN, there are many other clues the eyes will disclose, all of which will suggest the presence or absence of drugs or medical impairment. The test for LOC determines whether the subject is able to cross his or her eyes.

The check for LOC can provide another clue as to the possible presence of DID drugs and is also an indicator of Cannabis.

Drug categories that do not cause HGN cause a change to occur in pupil size. These categories either dilate or constrict the pupils. By carefully observing the subject's eyes you may observe evidence of drug impairment.

Lack of Convergence



B. Discuss Lack of Convergence

Lack of Convergence (LOC)

LOC

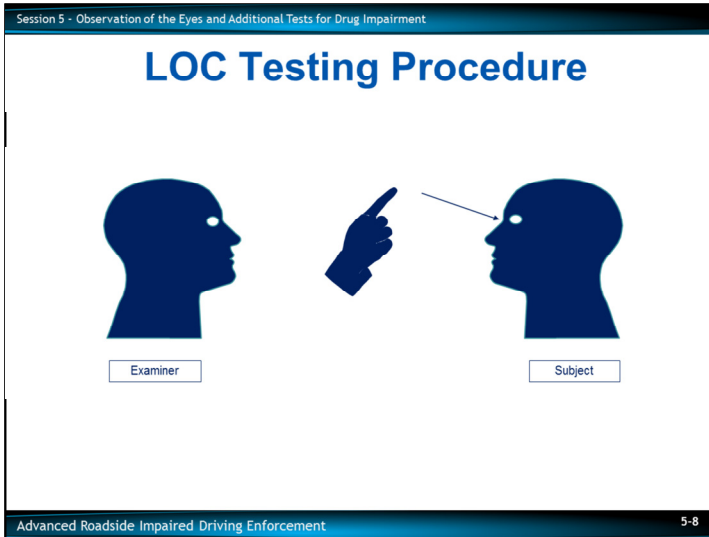
The inability of the person's eyes to converge or cross as the person attempts to focus on a stimulus as it is pushed towards the bridge of the nose.

Definition of LOC

The inability of the person's eyes to converge or "cross" as the person attempts to focus on a stimulus as it is pushed towards the bridge of the nose.

The check for LOC can provide another clue as to the possible presence of DID drugs and Cannabis.

Handwriting practice lines consisting of 15 horizontal lines.

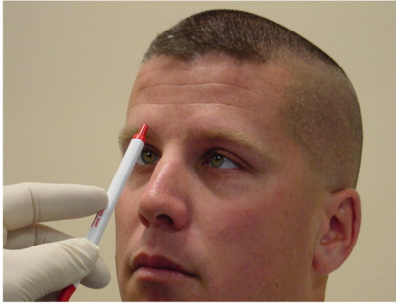


Administration of LOC

Instruction Stage

- Advise the subject he or she will have to keep their head steady and try to cross the eyes in order to keep their eyes focused on the stimulus as it moves in toward the nose
- Advise the subject you will not actually touch the subject's nose
- Keep the object 12-15 inches away from the subject's nose and start to move the stimulus slowly in a circle
- Verify the subject is tracking the stimulus
- Stop moving in a circular manner with the stimulus above eye level
- Move the stimulus to within approximately two inches from the bridge of the subject's nose and hold for approximately one second
- Carefully observe the subject's eyes to determine whether both eyes converge on the stimulus
- It is recommended to repeat the check for LOC at least two times

Normal Convergence



Test Interpretation

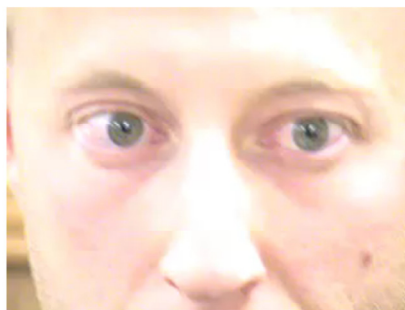
- If the eyes converge (cross) when the stimulus is approximately two inches from the bridge of the nose, then LOC is “none”
- LOC is present if the subject’s eyes do not come together and cross as they track and stay aligned on the stimulus
- In a non-impaired subject, the eyes should come together (converge) and remain converged for one second

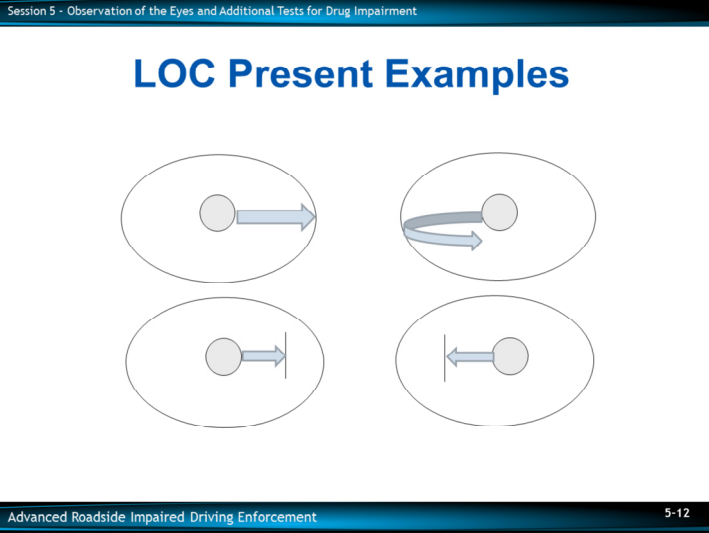
LOC



If the eyes do not converge or remain converged on the stimulus for one second, then LOC is present

LOC





Left Eye Unable to Converge

- Both eyes began to converge, however the left eye bounced down and back out

Both Eyes Unable to Converge

- Both eyes began to converge, however they both stopped before the convergence was completed

There are no validated clues associated with the LOC test, the officer should note all observations associated with this test.

- The law enforcement officer should note whether or not convergence is present and document their observations as to the movement of the eyes during this test.

Session 5 - Observation of the Eyes and Additional Tests for Drug Impairment

Drug Categories That Usually Cause LOC

- CNS Depressants
- Inhalants
- Dissociative Anesthetics
- Cannabis

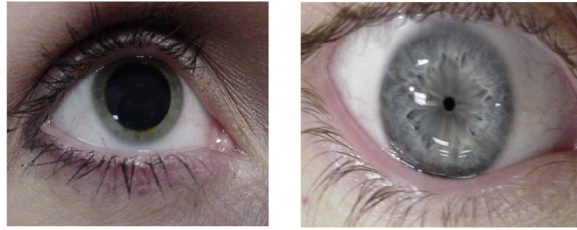
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The following drug categories usually will cause LOC:

- CNS Depressants
- Inhalants
- Dissociative Anesthetics
- Cannabis

These four drug categories are often referred to as DIDC drugs.

Pupil Size Observations



C. Describe the Difference in Pupil Size

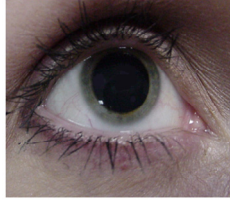
Pupil Size Observations

- The pupil is basically a circular hole in the middle of the iris, which regulates the amount of light that passes through into the retina
- The pupils of the eyes continually adjust in size to accommodate different lighting conditions and refocus according to focal length
- When placed in a darkened environment, the pupils will normally expand in size, or dilate, to allow the eyes to capture as much light as possible
- When the lighting conditions are very bright, the pupils will normally shrink or constrict, to limit the amount of light that passes through and to keep the eyes from being over stimulated
- This process of constriction and dilation normally occurs within certain limits
- This course trains officers to recognize the noticeable differences in the pupil sizes
- If the two pupils are distinctly different in size, it is possible the subject has a glass eye or is suffering from a head injury or a neurological disorder
- When ingested, each of the seven drug categories has a predictable effect on pupil sizes, which will be discussed in the subsequent sections.

Example: If a stop is made during the day, you should expect to see the pupils somewhat smaller, because of the bright lighting conditions.

Dilated Pupils

When pupils are larger than expected for given lighting condition, resulting in a noticeably larger opening (circle) in the center of the eye.

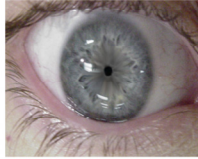


Dilated Pupils

The pupils appear larger than expected for the given lighting condition resulting in a noticeably larger opening (circle) in the center of the eye.

Constricted Pupils

When pupils are smaller than expected for given lighting conditions, resulting in a noticeably smaller opening in the center of the eye.



Constricted Pupils

When pupils appear smaller than expected for the given lighting conditions, resulting in a noticeably smaller opening (circle) in the center of the eye.

The effects drugs have on the eyes are involuntary reactions, which mean they cannot be controlled by the subject.

Modified Romberg Balance Test



D. Modified Romberg Balance Test


The MRB test is adapted and modified from its original use as a neurological assessment tool. It can be administered to check a subject's time estimation, balance, and presence of tremors (eyelid and body).

Since part of the MRB test checks for balance, care should be taken to ensure the test is conducted on a level surface and in an environment which is appropriate for this type of test when conducted at roadside.

Session 5 - Observation of the Eyes and Additional Tests for Drug Impairment

Three Indicators of MRB Test

- Time estimation
- Tremors
- Swaying



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During the MRB test watch for three indicators simultaneously.

- Estimation of the time estimation of 30 seconds
- Observation of tremors
 - Eyelid and/or body or muscle
- Observation of sway
 - Front-to-back
 - Side-to-side
 - Circular/rotational

MRB Test

Divided attention
Time estimation



The modified version of the original Romberg Balance Test is a divided attention test as well as a possible measurement of the person’s internal timing estimates.

- The officer must record how much time actually elapsed from the start of the test until the subject opened their eyes and said “stop”
- If the subject continues to keep their eyes closed for 90 seconds, the officer should stop the test and record the fact it was terminated at 90 seconds

Stages of MRB Test

1. Instruction stage
2. Balancing stage

There are two stages to the MRB test:

1. Instruction stage
2. Balancing stage

MRB Test



Administrative Procedures

Instruction Stage

1. Stand straight with your feet together and your arms down at your sides.
 2. Remain in this position while I finish giving the instructions.
 3. Do not start the test until I say “start.”
 4. Ask if the subject understands the instructions
Make sure to obtain a verbal response from the subject.
 5. “When I tell you to start, I want you to tilt your head back slightly and close your eyes.”
DEMONSTRATE how the head should be tilted, but DO NOT CLOSE YOUR EYES while demonstrating.
 6. “Once you have closed your eyes, I want you to remain in that position until you think 30 seconds have gone by.”
 7. “As soon as you think 30 seconds have passed, open your eyes, tilt your head forward, and say ‘Stop.’”
 8. Do you understand?
Make sure to obtain a verbal response from the subject.
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MRB Test



Balancing Stage

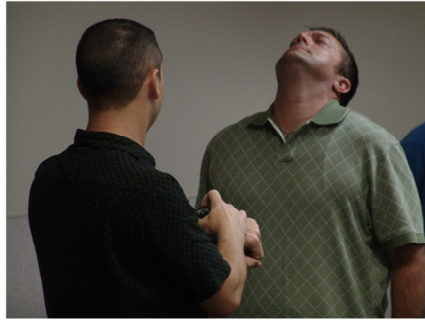
1. Look at your timing device and pick a convenient time to start the test.
2. Tell the subject to tilt their head back and close their eyes.
3. Tell the subject to begin or start the test.
4. Keep track of time while the subject performs the test.
5. Check subject for presence of tremors (eyelid and/or body) and sway.
6. When the subject opens their eyes, ask them “how much time was that?”
7. Record how much time actually elapsed from the start of the test until the subject opened their eyes or was told to stop.
 - If the subject continues to keep their eyes closed for 90 seconds, stop the test and record the fact it was terminated at 90 seconds.

Make sure to document their “exact” verbal response.

Instructor-Led Demonstrations

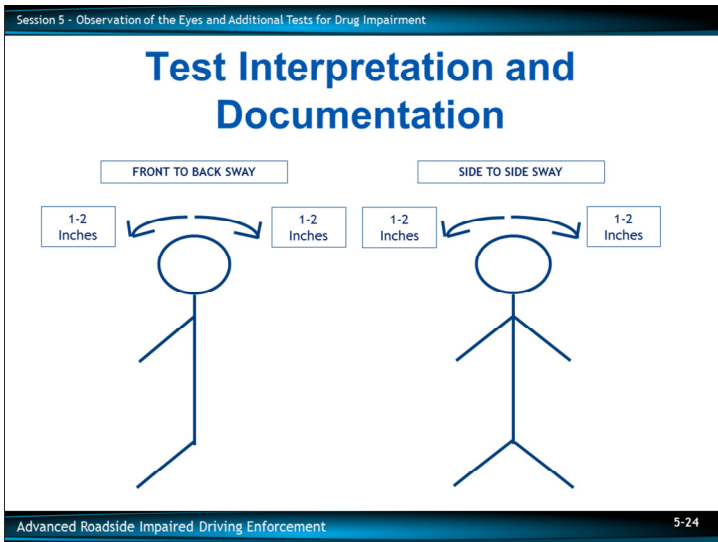
Instructor-to-Participant Demonstration

MRB Test Practice



Participant-Led Demonstrations

Hands-On Practice



Recording Results of the MRB Test

The major items that need to be recorded for the MRB test are:

- The amount the subject sways
- The actual amount of time the subject keeps their eyes closed
- To record swaying, the officer must estimate how many inches the subject sways, either front-to-back or left-to-right, or both
- In some cases, the subject may exhibit a circular or rotational sway. An estimate on the amount of sway should be documented if observed.

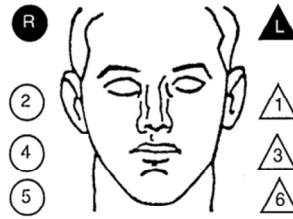
Example: If the subject sways approximately two inches toward the left and approximately two inches toward the right, the officer should write the number “2” on each side of the “stick figure” that shows left-to-right movement. To record the subject’s time estimate, simply write the number of seconds the subject kept his or her eyes closed. Research has indicated a non-impaired subject’s time estimation will typically be within +/- 5 seconds of 30 seconds.

Finger-to-Nose Test Administrative Procedures

(Draw lines to spots touched)

Order:

L, R, L, R, R, L



E. Finger-to-Nose

The FTN is another divided attention test used to detect drug impairment.

FTN differs from the other three tests in the officer must continue to give instructions to the subject throughout the test.

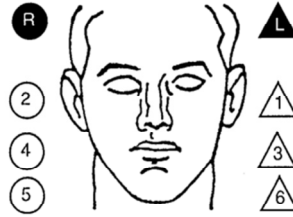
Administrative Procedures for FTN

- The subject must be told he/she will be given a series of commands, i.e., “left, right, etc.” to indicate which fingertip is to be brought to the tip of the nose
- The subject must be told to stand with feet together, arms down at the sides, facing the examiner
- The officer should demonstrate the stance
- The subject must be told to close his/her hands, rotate the palms forward and then to extend the index fingers from the closed hands
- The officer must tell subject they will be asked to touch the tip of the index finger to the tip of the nose
- The officer must demonstrate to the subject how they are expected to touch the fingertip to the nose (without actually touching the nose)
- Demonstrate: When I say ‘left,’ touch the tip of your left index finger to the tip of your nose

FTN Test Administrative Procedures (Continued)

(Draw lines to spots touched)

Order:
L, R, L, R, R, L



- The officer must tell the subject they are expected to return the arm to the side immediately after touching the fingertip to the nose
- Demonstrate the movement of the fingertip to the nose by standing at an angle to the subject so he/she can see the proper method for touching the nose
- The subject must be told to tilt the head back slightly and to close the eyes and keep them closed until the officer says to open them
- The officer should demonstrate the stance with head tilted back, arms at the sides with index fingers extended. Remind the participants they should not close their eyes during the instructions for safety reasons.

Instructor-Led Demonstrations

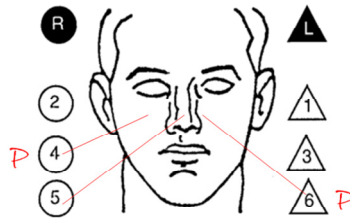
Instructor demonstration.

Participant-Led Demonstrations

FTN Test Recording Results

(Draw lines to spots touched)

Order:
L, R, L, R, R, L



Recording Results of the FTN Test

- The results of FTN test are recorded by drawing a “map” showing where the fingertips landed on each attempt
- A line should be drawn to the appropriate circle or triangle to indicate where the subject touched their nose
- Suggestion: If the officer draws the line from the place where the subject touches to the appropriate circle or triangle, it enables them to draw a straighter line

Hands-on Practice

Draw Lines to Spots Touched:

Right ○ Left △

Order:
L,R,L,R,R,L



Session 5 - Observation of the Eyes and Additional Tests for Drug Impairment

Relationships to the Categories

	CNS Dep.	CNS Stim.	Hall.	Dissoc. Anest.	Narc. Analg.	Inhalant	Cannabis
HGN	Present	None	None	Present	None	Present	None
VGN	Present *	None	None	Present	None	Present *	None
LOC	Present	None	None	Present	None	Present	Present
Pupil Size	Normal (1)*	Dilated	Dilated	Normal	Constricted	Normal (2)*	Dilated (3)*

*High dose for that individual
 1. Soma, Quaaludes, and some antidepressants usually dilate pupils
 2. Normal, but may be dilated
 3. Pupil size possibly normal

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F. Relationship Between the Eye Examinations and the Seven Drug Categories

Eye Observations

- Eye observations can provide valuable information which can help determine impairment
- Additionally, as discussed in Session 2, HGN is a critical part of assessing subjects suspected of being impaired by alcohol
- HGN also plays a significant part in the evaluation of subjects who might be impaired by drugs alone or in combination with alcohol

In addition to HGN, VGN, and LOC, pupil size can also provide information which contributes to the overall process in determining whether or not a subject is impaired by alcohol and/or drugs.

A chart is provided in Session 6 to assist in recognizing signs of alcohol, drug, or a combination of both alcohol and drug impairment relative to eye observations. This chart or any of the other information presented in this course relative to a specific drug category is not meant to encourage the officer to connect their observations to a specific drug category.

Caution

- Although effects displayed in the table are what you will usually find when observing a subject impaired by various types of drugs, you may not always find them
- Not everyone is affected the same way by drugs

The officer who successfully completes this course shall use only their roadside observations to make a decision as to whether the subject is impaired or not impaired according to their specific State's statutes and support an arrest or no arrest decision.

*Important Note: (Caution) Although effects displayed in the chart are what you will **usually** find when observing a subject impaired by various types of drugs, you **may not always** find them. Not everyone is affected the same way by drugs. You need to remember this when describing drug effects. It is best "never to say never" and "always avoid saying always."*

The officer who completes this course is NOT certified as a Drug Recognition Expert (DRE) and does not have the training required to support the selection of a specific drug category which may be the source of the subject's impairment.

It is strongly recommended an officer, whenever possible, involve a DRE in the post-arrest investigation.

QUESTIONS?

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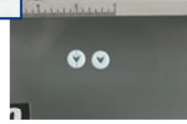
Session 6 – Seven Drug Categories



February 2018

Session 6

Seven Drug Categories



Learning Objectives

- **Identify common drug names and terms associated with the seven drug categories**
- **Identify common methods of ingestion for each category**
- **Describe indicators of impairment associated with each category**

Upon successfully completing this session, the participant will be able to:

- Identify common drug names and terms associated with the seven drug categories
- Identify the common methods of ingestion for each category
- Describe the indicators of impairment associated with each category

Learning Objectives (Continued)

- Describe conditions which may mimic signs and symptoms associated with each drug category
- List indicators which may emerge during the three phases of the DWI detection process which may indicate the subject is under the influence of a drug(s)

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- Describe conditions which may mimic the signs and symptoms associated with each drug category
 - List the indicators which may emerge during the three phases of the DWI detection process (vehicle in motion, personal contact and pre-arrest screening) which may indicate the subject is under the influence of a drug(s)

CONTENT SEGMENTS

A. Overview of the Drug Categories

- For each Drug Category, identification of:
 - Drugs
 - Indicators
 - Eye indicators
 - Other conditions which mimic indicators
 - Expected results from the detection process

B. Officer Safety

LEARNING ACTIVITIES

Instructor-Led Presentation

Seven Categories of Drugs

- CNS Depressants
- CNS Stimulants
- Hallucinogens
- Dissociative Anesthetics
- Narcotic Analgesics
- Inhalants
- Cannabis

A. Overview of the Drug Categories

Historically, alcohol has been the most used and abused psychoactive Depressant.

The majority of the general public is familiar with the effects of alcohol either through personal experience and/or observing others impaired by alcohol.

This familiarity with the indicators of impairment associated with alcohol makes the Depressant category relatively straightforward.

Seven Categories of Drugs:

- Central Nervous System (CNS) Depressants
 - CNS Stimulants
 - Hallucinogens
 - Dissociative Anesthetics
 - Narcotic Analgesics
 - Inhalants
 - Cannabis
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Seven Drug Categories CNS Depressants



CNS Depressants

CNS Depressants are drugs that slow down the operations of the central nervous system.

In order for a drug to be classified as a Depressant according to the Drug Evaluation and Classification (DEC) Program, it must:

- Depress the activity of a subject's brain and CNS

Alcohol - The Most Familiar CNS Depressant



The CNS Depressant category includes the single most commonly abused and most familiar drug in America – alcohol.

CNS Depressant

Depressants slow down the activity of an individual's brain and central nervous system.

At doses greater than therapeutic levels, impairment of the body's autonomic nervous system is affected.

Identification of a CNS Depressant

CNS Depressants initially affect:

- Speech**
- Coordination**
- Mobility**

The Depressant category initially affects a person’s functions:

- Speech
- Coordination
- Mobility

At doses greater than therapeutic levels (amounts typically prescribed by a physician), the body’s autonomic nervous system is affected and may cause impairment.

Doses Greater Than Therapeutic Levels

CNS Depressants may cause impairment to the body's autonomic nervous system.

- Heartbeat
- Blood Pressure
- Breathing



The systems affected are:

- Heartbeat
- Body temperature
- Breathing

In addition to alcohol, the Depressant category also includes:

- Anti-anxiety drugs
- Antipsychotics
- Antidepressants
- Barbiturates
- Non-barbiturate
- Combinations

Subjects impaired by Depressants may look very much like subjects impaired by alcohol, but without the odor of alcohol on their breath.

Illicit CNS Depressants

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



Advanced Roadside Impaired Driving Enforcement

These are examples of just a few anti-anxiety tranquilizers, antidepressants, and antipsychotics legally prescribed for a variety of disorders.

There are also several illicit CNS Depressants that have gained national attention in the past several years.

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

These drugs have been implicated in an alarming number of sexual assaults and overdose deaths. Rohypnol is most commonly found in pill form (1 or 2 mg).

Methods and Signs of Ingestion

- Oral
- Insufflation
- Injection



Methods and Signs of Ingestion

Generally, CNS Depressants will be found in pill or liquid form.

The most common method for using Depressants is to take them orally. Pills may be crushed and insufflated (snorted).

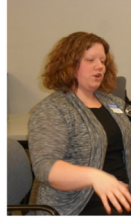
Some CNS Depressants, on very rare occasions, may be injected.

When CNS Depressants (other than alcohol) are taken orally, signs of ingestion may be difficult to detect.

- There are occasions when a subject may chew the tablets to create a quicker onset of effect
 - When this happens traces of the tablet may be lodged in the teeth.
- Injection sites are easily identifiable by swelling of the area and ulcerations of the skin
- The injection sites differ from those of other injectable drugs because liquid Depressants are generally thicker and take a larger gauge needle to inject the drug

Effects of CNS Depressants

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.



Effects of CNS Depressants

A person impaired by a CNS Depressant will look like a drunk, talk like a drunk, walk like a drunk, but they may not smell like a drunk.

Therapeutic doses (amounts typically prescribed by a physician) may not exhibit observable effects if they are ingested as prescribed.

Combinations of Depressants can be risky; they are commonly combined with alcohol. This increases the effects of the Depressant and could magnify the effects and observable signs and symptoms.

General Indicators

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



Indicators include:

- A wide variety of emotional effects:
 - Euphoria
 - Depression
 - Laughing or crying for no apparent reason
- Reduced ability to divide attention
- Disoriented
- Sluggish
- Thick, slurred speech
- Drunk-like behavior

General Indicators

- **Droopy eyelids**
- **Relaxed inhibitions**
- **Uncoordinated**
- **Drowsiness**
- **Unsteady/Staggering walk**



- Droopy eyelids
- Relaxed inhibitions
- Uncoordinated
- Drowsiness
- Unsteady/Staggering walk

CNS Depressants typically slow the Central Nervous System and may slow a subject’s time estimation.

Eye Indicators

HGN	Present
VGN	May be Present (high dose)
LOC	Present
Pupil Size	Normal*

Eye Indicators

- Horizontal Gaze Nystagmus (HGN) – Present
- Vertical Gaze Nystagmus (VGN) – May be Present – especially at high dose levels for that individual
- Lack of Convergence (LOC) – Present
- Pupil Size – Normal *Soma, Quaaludes and certain anti-depressants may dilate

Onset and Duration of Effects

Type	Onset	Duration
Ultra Short	Seconds	Few Minutes
Short	10 to 15 min.	5 hours
Intermediate	30 minutes	6 to 8 hours
Long Acting	One hour	8 to 14 hours

Onset and Duration of Effects

There are four different classes of Depressants which are classified based on how quickly they take effect and how long their effects last. They are:

<u>Type</u>	<u>Action</u>
Ultra Short	Very fast acting, very brief effects
Short	Fairly fast acting, effects last several hours
Intermediate	Relatively slow acting but prolonged effects
Long	Delayed but long-lasting effects

Duration of Effects

Type	Duration
Barbiturate	1 – 16 hours
Tranquilizers	4 – 8 hours
GHB	3 – 5 hours
Rohypnol	Peak 1 – 2 hours Duration 8 – 12 hours

<u>Type</u>	<u>Duration</u>
Barbiturate	1-16 hours
Tranquilizers	4-8 hours
GHB	3-5 hours
Rohypnol	1-2 hours, Duration 8-12 hours

Overdose Signs and Symptoms

- Shallow breathing
- Clammy skin
- Rapid/weak pulse
- Dilated pupils



Overdose Signs and Symptoms

- Shallow breathing
- 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**

Medical Conditions That May Mimic Drug Impairment

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

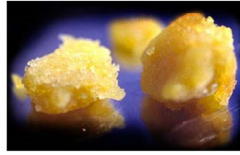
Drug Matrix

	CNS Dep.	CNS Stim.	Hall.	D.A.	N.A.	Inhalant	Cannabis
HGN	Present						
VGN	Present						
LOC	Present						
Pupil Size	Normal*						

* Soma, Quaaludes, and some Antidepressants usually dilate pupils

Drug Matrix

Seven Drug Categories CNS Stimulants



CNS Stimulants

CNS Stimulants are drugs that speed up the operation of the central nervous system.

CNS Stimulants

- **Relieve fatigue**
- **Aid in weight reduction**
- **Reduce the need for sleep**
- **Increase energy and confidence levels**



CNS Stimulants:

- Relieve fatigue
- Aid in weight reduction
- Reduce the need for sleep
- Increase energy and confidence levels

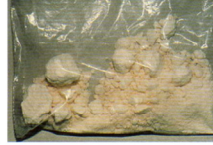
In general, stimulants bring about both a psychological and physical stimulation.

CNS Stimulants are commonly known as “*uppers*” and their effects are similar to the body’s fight or flight responses.

As Stimulants “wear off,” the individual can exhibit signs and symptoms similar to those associated with Depressants since some of the body’s systems may experience a “crash.”

Widely Abused CNS Stimulants

- Cocaine
- Amphetamines
- Methamphetamines



The most widely abused CNS Stimulants are:

- Cocaine
- Amphetamines
- Methamphetamines

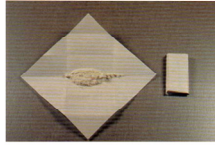
Coca Plant



“Erythroxylon Coca”

Cocaine is made from the leaves of the coca plant and is generally found as a white or off-white powder.

Cocaine



Crack cocaine is made by mixing baking soda, Cocaine, water, then heating.

It appears as small white or off-white chunks.

Amphetamines



Methamphetamine

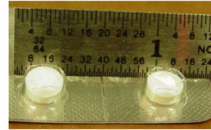
Amphetamine Sulfate

Amphetamines are usually found in pill form and are legally manufactured for medical use.

Methamphetamine is an illicit drug and usually has the consistency of brown sugar, can be a variety of different colors, and is primarily produced illegally.

Legal CNS Stimulants

- Diet Max
- Diet Now
- Diet Pep
- Mahuang
- Anti-insomnia aids (Mini-tabs, 357 Magnum, Ephedrine)



Ephedrine and pseudoephedrine are also classified as CNS Stimulants.



Ephedrine is often advertised as diet supplements:

- Diet Max
- Diet Now
- Diet Pep
- Mahuang
- Anti-insomnia aids (Mini-tabs, 357 Magnum, Ephedrine)
- “Natural versions of illegal drugs” (Herbal Ecstasy and Herbal Bliss). Pseudoephedrine can be found in a variety of over-the-counter antihistamines, decongestants, and cold products, thus making it more accessible
 - Both are usually found in pill form and can be used in the production of methamphetamine
 - When taken in excess, they have the ability to impair

Session 6 – Seven Drug Categories

Prescribed CNS Stimulants

- Ritalin
- Adderall
- Dexedrine

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Ritalin, Adderall, and Dexedrine are also classified as CNS Stimulants.

These medications allow an individual with Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD) to focus their attention.

These medications have recently become commonly abused by students and professionals who want to obtain a temporary increase in their ability to focus and process information.

Methods and Signs of Ingestion

- **Insufflated**
- **Injected**
- **Smoked**
- **Oral**



Methods and Signs of Ingestion

There are many types of Stimulants and their form will dictate the method of ingestion.

- Powder cocaine is typically insufflated, but can be injected or smoked
- To be injected it must be converted to a liquid form
 - Users will heat the powder in distilled water
 - The chemicals will combine to form the injectable liquid
- Crack cocaine is smoked
 - Crack Cocaine burns very hot, there may be signs of ingestion in the mouth

Ingesting Stimulants

- **Methamphetamine**
- **Other Amphetamines**
- **Orally (tablets, capsules, etc.)**



- Methamphetamines can be insufflated, smoked, injected, or taken orally
- Ephedrine, Pseudoephedrine, Ritalin, Adderall, and Dexedrine are primarily taken orally
 - Ritalin can also be crushed and insufflated

Ingestion Signs

- **Perforated septum**
- **Powder residue in nasal cavity**
- **Blisters on lips and tongue**
- **Injection marks**



When a CNS Stimulant is taken orally, signs of ingestion may be very limited.

When they are inhaled (as a powder) the septum may be perforated and the nasal tissue may be irritated or inflamed.

When they are smoked, the intense heat of the smoke may cause burn marks on the fingers (where the pipe was held) and burn marks on the lips (where the pipe touched the mouth).

Injection marks may be observed as a fresh puncture mark with blood oozing, bruising of the vein (caused by damage to the vein itself), or older marks which may have dried blood covering the mark.

Effects of CNS Stimulants

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



The main effect of most CNS Stimulants is Euphoria – an extremely pleasurable sensation, while the drug is psychoactive. However, the user may find an opposite effect as the drug wears off.

While the drug is psychoactive, the user may seem like their system is sped up or in fast forward, but, as the drug leaves the system (crashing), this person may appear as though they are under the influence of a CNS Depressant or Narcotic Analgesic.

General Indicators of Impairment

- Redness to nasal area
- Runny nose
- Increased alertness
- Dry mouth
- Irritability
- Eyelid and leg tremors
- Insomnia

-
- Redness to nasal area
 - Runny nose
 - Increased alertness
 - Dry mouth
 - Irritability
 - Eyelid and leg tremors
 - Insomnia

Because CNS Stimulants speed up the CNS, the user may exhibit a fast time estimation.

Eye Indicators

HGN	None
VGN	None
LOC	None
Pupil Size	Dilated

Eye Indicators / Matrix

- HGN – None
- VGN – None
- LOC – None
- Pupil Size – Dilated

Duration of Effects

Type	Duration
Cocaine	5 – 10 minutes (smoked)
	5 – 15 minutes (injected)
	30 – 90 minutes (snorted)
Amphetamines	4 – 8 hours
Methamphetamines	12 hours
Ritalin	Varies
Adderall	Varies
Dexedrine	Varies

Duration of Effects

Cocaine	5-10 minutes (smoked) 5-15 minutes (injected) 30-90 minutes (snorted)
Amphetamines	4-8 hours
Methamphetamines	12 hours
Ritalin, Adderall, Dexedrine	Varies

Overdose Signs and Symptoms

- Agitation
- Increased body temperature
- Hallucinations



Overdose Signs and Symptoms

Overdose signs and symptoms of a CNS Stimulant may include, but are not limited to:

- Agitation
- Increased body temperature
- Hallucinations

Conditions That May Mimic CNS Stimulants

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



Conditions that may mimic CNS Stimulant impairment

There are several conditions that may mimic impairment by a CNS Stimulant. These may be, but are not limited to:

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

Drug Matrix

	CNS Dep.	CNS Stim.	Hall.	D.A.	N.A.	Inhalant	Cannabis
HGN	Present	None					
VGN	Present	None					
LOC	Present	None					
Pupil Size	Normal*	Dilated					

**Soma, Quaaludes, and some Antidepressants usually dilate pupils*

Seven Drug Categories Hallucinogens



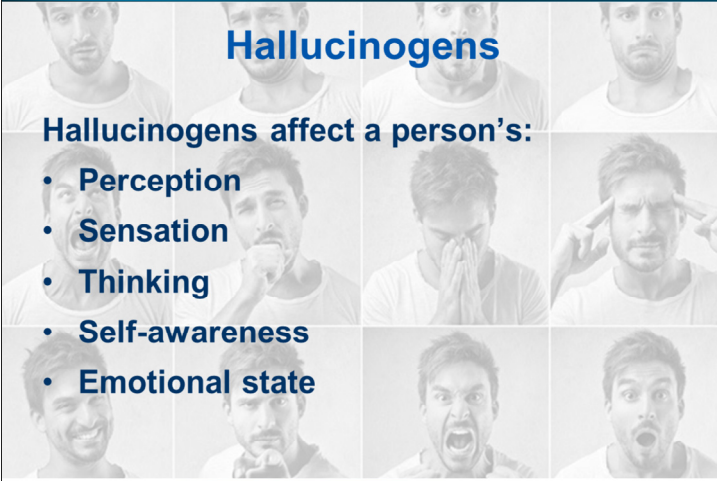
Hallucinogens

Hallucinogens

Hallucinogens affect a person's:

- Perception
- Sensation
- Thinking
- Self-awareness
- Emotional state

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Hallucinogens are drugs that affect a person's:

- Perception
- Sensation
- Thinking
- Self-awareness
- Emotional state

Hallucinogens

- Cause hallucinations
- Hallucinations are sensory experiences of something that does not exist outside the mind



The word "Hallucinogen" means something that causes hallucinations.

A hallucination is a sensory experience of something that does not exist outside the mind.

Hallucinogens

- **An example of a hallucination would be seeing sounds and hearing colors**
- **This is called Synesthesia – the transposition of senses**



The category is classified in this manner because one of the significant effects of these drugs is hallucinations.

An example would be seeing something that does not exist or hearing a color. This is called Synesthesia – or a transposition of senses.

Identification of Hallucinogens

Some Hallucinogens occur naturally:

- **Peyote** – a species of cactus containing *mescaline*
- **Numerous mushrooms (psilocybin)**
- **Jimson Weed and Morning Glory seeds**
- **Toad (*Bufo Alvarius*)**

Identification of Hallucinogens

Some hallucinogenic drugs 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 can also be abused, often with tragic consequences
- There is also a toad (*Bufo Alvarius*), which releases a hallucinogenic secretion when threatened

Common Hallucinogens



Peyote (Mescaline)



**Psilocybin
(Both are grown naturally)**

Common Hallucinogens

- Peyote (Mescaline)
- Psilocybin

Both are grown naturally.

Identification of Hallucinogens

Some Hallucinogens are synthetically manufactured:

- **Lysergic Acid Diethylamide (LSD)**
- **3,4-Methylenedioxymethamphetamine (MDMA) or Ecstasy**

Hallucinogenic drugs are also synthetically manufactured. Examples include:

- Lysergic Acid Diethylamide (LSD) liquid can be placed on blotter paper and sold as tabs or it can be absorbed by sugar cubes or other pills
- 3,4-Methylenedioxymethamphetamine (MDMA) or Ecstasy is an example of a synthetically produced Hallucinogen
 - MDMA can be found as a pill or as a powder

A pill press can be used to compress the powder into a pill which may contain a variety of different shapes or figures.

The use and abuse of Ecstasy has received wide spread attention because of its popularity in the “rave scene” and overdose deaths.

Methods of Ingestion

- Oral
- Transdermal
- Smoked
- Injected
- Insufflation



Many Hallucinogens are taken orally.

LSD is absorbed directly either by placing it on the:

- Tongue
- Skin
- When a substance is absorbed through the skin it is called transdermal absorption.

Extreme care should be taken when handling suspected LSD blotter paper. LSD can be absorbed through the skin causing unintentional intoxication. Gloves should be worn!

Substances that are dried and then eaten or brewed as a tea.

- Peyote
- Psilocybin Mushrooms
- Jimson Weed
- Morning Glory seeds

Ecstasy is usually taken orally.

Additionally, users can consume Hallucinogens by:

- Smoking
- Injecting
- Insufflation

Since most Hallucinogens are taken orally, detecting any signs of ingestion may be difficult.

Effects of Hallucinogens

- **Generally intensifies mood of user at time of ingestion**
- **If user is depressed – you could observe a deeper depression**
- **If user is feeling pleasant – you could see a heightened pleasure**

Effects of Hallucinogens

The user can feel a wide variety of effects when using Hallucinogens. The effects depend on the personality and expectations of the individual as well as the surroundings in which the drug is taken.

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

- Can uncover emotional flaws in user
- User may expect a pleasurable “trip,” but end up instead with a bad “trip”



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**

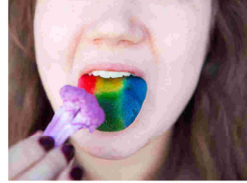
General Indicators

Some of the physical, mental, and medical behaviors associated with Hallucinogens are:

- 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**



Flashbacks are not believed to be caused by a residual quantity of drug in the user's body, but rather are vivid recollections of a previous hallucinogenic experience.

This can be similar to flashbacks associated with traumatic events.

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

Hallucinogens cause the user to have a poor perception of time and can result in difficulty estimating time.

Eye Indicators

HGN	None
VGN	None
LOC	None
Pupil Size	Dilated

Eye Indicators

- HGN – None
- VGN – None
- LOC – None
- Pupil Size – Dilated

Duration of Effects

Type	Duration
LSD	10 – 12 hours (peaks between 4 – 6 hours)
Ecstasy	1 – 3 hours
Psilocybin	2 – 3 hours
Peyote	Up to 12 hours (peaks between 3 – 4 hours)

Duration of Effects

LSD 10 to 12 hours (Peaks between 4-6 hours)
Ecstasy 1 to 3 hours
Psilocybin 2 to 3 hours
Peyote up to 12 hours (Peaks between 3-4 hours)

Overdose Signs and Symptoms

The primary overdose symptom for the Hallucinogen category is a long and intense “bad trip”.

The primary overdose symptom for the Hallucinogen category is a long and intense “bad trip.”

Medical Conditions That Mimic Hallucinogen Impairment

- High fever
- Mental illnesses



There are two conditions that may mimic impairment by a Hallucinogen. These may be, but are not limited to:

- High fever
- Mental illnesses

Drug Matrix

	CNS Dep.	CNS Stim.	Hall.	D.A.	N.A.	Inhalant	Cannabis
HGN	Present	None	None				
VGN	Present	None	None				
LOC	Present	None	None				
Pupil Size	Normal *	Dilated	Dilated				

** Soma, Quaaludes and some Antidepressants usually Dilate Pupils*

Seven Drug Categories Dissociative Anesthetics



Dissociative Anesthetics

Dissociative Anesthetics include drugs that inhibit pain by cutting off or disassociating the brain's perception of pain.

Dissociative Anesthetics

- PCP – Phencyclidine
- Analogs
- Ketamine
- Dextromethorphan



Phencyclidine, along with its analogs, forms a distinct category all by themselves.

The chemical name for PCP is Phenyl Cyclohexyl Piperidine.

An analog of a drug is one with a similar chemical composition.

Analogs have slightly different chemical structures but produce the same effects.

Dissociative Anesthetics symptoms may be confused with individuals under the influence of Hallucinogens, Stimulants, and Depressants.

If a thorough assessment is not performed, the examiner may jump to an incorrect conclusion.

Identification of Dissociative Anesthetics

- **PCP was originally manufactured as an intravenous anesthetic - trade name *Sernyl***
- **Ketamine (*Ketalar*) is an analog of PCP and is still used in pediatric and animal surgery**
- **DXM is found in over-the-counter antitussive medicines like *Robitussin, Coricidin Cough and Cold* and *Dimetapp***

Identification of Dissociative Anesthetics

PCP was originally manufactured as an intravenous anesthetic. It was marketed under the trade name of Sernyl.

Although the drug proved to be a very effective anesthetic, it was discontinued for human use in 1967 because of very undesirable side effects.

Ketamine (Ketalar) is an analog of Dissociative Anesthetics and is still used in pediatric and animal surgery.

DXM is found in over-the-counter antitussive medicines like Robitussin, Coricidin Cough and Cold and Dimetapp.

Methods and Signs of Ingestion

- Oral
- Insufflation
- Transdermal
- Eye Drops
- Smoked
- Injection



Methods and Signs of Ingestion

Dissociative Anesthetics ingestion:

- Oral
- Insufflation
- Transdermal
- Eye Drops
- Smoked
- Injection

Most common form of ingestion is smoking in cigars, cigarettes, and marijuana.

Officer safety is important. Numerous incidents have been documented where officers have been exposed to the side effects of the drug.

Effects of Dissociative Anesthetic

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

Effects of Dissociative Anesthetic

The predominant effect of Dissociative Anesthetics is the ability to cut off the brain’s perception of the rest of the body’s senses. This sense is so strong many users feel their head is actually separated from their body.

Another, more dangerous, effect of PCP is the user’s increased pain threshold. The user is impervious to the same pain sensations that would typically render an impaired person incapacitated.

One should be extremely cautious when dealing with an individual impaired by PCP.

General Indicators

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

General Indicators

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

General Indicators

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

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

Subjects impaired by Dissociative Anesthetics typically have difficulty estimating time.

Eye Indicators

HGN	Present
VGN	Present
LOC	Present
Pupil Size	Normal

Eye Indicators

HGN – Present

VGN – Present

LOC – Present

Pupil Size – Normal

Duration of Effects

Type	Duration
PCP	4 – 6 hours
Ketamine	30 – 45 minutes (injected)
	45 – 60 minutes (insufflation)
	1 – 2 hours (orally)
DXM	3 – 6 hours

Duration of Effects

PCP	4-6 hours
Ketamine	30-45 minutes (injected)
	45-60 minutes (Insufflation)
	1-2 hours (orally)
DXM	3-6 hours

The duration of general effects may vary according to dose and whether the drug is injected, snorted, smoked, or taken orally.

There is often a prolonged recovery period following the dissipation of the general effects.

Overdose Signs and Symptom

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

In addition to the bizarre, violent, and self-destructive behavior discussed previously, persons severely intoxicated by Dissociative Anesthetics may exhibit definite and extreme symptoms signifying a medically dangerous condition.

- A deep coma, lasting up to 12 hours
- Seizures and convulsions
- A danger associated with severe Dissociative Anesthetics intoxication is the person may die due to respiratory depression
- There is also some evidence Dissociative Anesthetics may trigger a heart attack if the user had some pre-existing condition disposing him or her to possible cardiac problems
- Eyes generally open with a blank stare

There is also some evidence prolonged use of Dissociative Anesthetics can lead to psychosis, which can be permanent.

Drug Matrix

	CNS Dep.	CNS Stim.	Hall.	D.A.	N.A.	Inhalant	Cannabis
HGN	Present	None	None	Present			
VGN	Present	None	None	Present			
LOC	Present	None	None	Present			
Pupil Size	Normal*	Dilated	Dilated	Normal			

**Soma, Quaaludes, and some Antidepressants usually dilate pupils*

Seven Drug Categories Narcotic Analgesics



Narcotic Analgesics

Narcotic Analgesics

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

Narcotic Analgesics

Drugs in the Narcotic Analgesics category relieve pain.

They induce euphoria, alter moods, and produce sedation.

Narcotic Analgesics are also included in the opiate family and are legal prescription medications as well as illegal drugs.

This category is known for its physically addicting properties and severe withdrawal symptoms.

Identification of Narcotic Analgesics

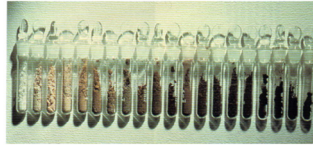
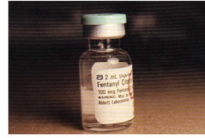
- **Most familiar Narcotic Analgesic is heroin**
- **Heroin is normally found in powder form**
- **Heroin’s color ranges from white to dark brown (tar color)**

Identification of Narcotic Analgesics

The most familiar Narcotic Analgesic is heroin.

Depending on the purity, heroin may be a white powder to a dark brown powder/tar color.

Heroin



Heroin

Heroin is the most commonly abused illicit Narcotic Analgesic.

Derived from Morphine in 1874.

Heroin was first thought to be a non-addictive substitute for Morphine.

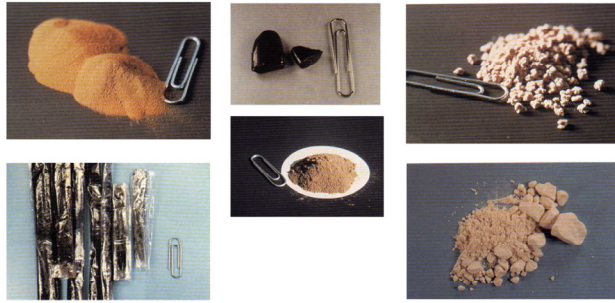
It was approved for general use by the American Medical Association in 1906.

By the 1920's, it was evident heroin was much more addictive than Morphine.

Importation and manufacture of heroin have been illegal in this country since 1925.

Heroin is a Schedule I drug, which means it has no legitimate medical uses in the United States.

Heroin



Identification of Narcotic Analgesics

Other Narcotic Analgesics include:

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

Other Narcotic Analgesics include:

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

Typically, these are prescription drugs and found in pill form. The shape, size, or scoring can depend on the manufacturer or milligram amount. In most cases, Narcotic Analgesics are obtained in local pharmacies and sold locally. These drugs are inexpensive and frequently prescribed, but nevertheless remain a controlled substance.

Methods of Ingestion

- Orally in pill form
- Injected as a liquid
- Smoked
- Insufflation
- Suppositories
- Transdermal



Methods of Ingestion

Methods of ingestion vary, depending on the drug used. They may be taken:

- Orally in pill form
- Injected as a liquid
- Smoked
- Insufflation
- Suppositories
- Transdermal

Most of the prescribed pain relievers are found in the pill form, which will be taken orally. If taken orally, signs of ingestion may be limited.

Heroin that is more pure may be insufflated, while heroin that is less pure is typically injected.

Effects of Narcotic Analgesics

- Usually very addictive
- Addicts who stop using may suffer physical withdrawal symptoms
- Users may develop a tolerance to the drug

Effects of Narcotic Analgesics

- Usually very addictive
- This means the person must receive a dose of the drug at regular intervals or physical withdrawal may result
- Narcotic Analgesics also enable the person to 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 speech**



General Indicators

- Droopy eyelids
- “On the nod” (Semiconscious type state of deep relaxation)
- Drowsiness
- Depressed reflexes
- Dry mouth
- Slow, low, raspy speech

General Indicators

- Euphoria
- Puncture marks
- Itching
- Nausea
- Slowed breathing



- Euphoria
- Puncture marks
- Itching (Face, arms or body)
- Nausea
- Slowed breathing

Eye Indicators

HGN	None
VGN	None
LOC	None
Pupil Size	Constricted

Eye Indicators

HGN – None
 VGN – None
 LOC – None
 Pupil Size – Constricted

Duration of Effects

Type	Duration
Heroin	4 – 6 hours
Hydrocodone	6 – 8 hours
Dilaudid	5 hours
Vicodin	4 – 6 hours
Methadone	12 – 18 hours

Duration of Effects

The duration of Narcotic Analgesics can vary from one type to another. Dosage amounts, age, weight, tolerance, and other variables may dictate the length of actual impairment.

Heroin	4-6 hours
Hydrocodone	6-8 hours
Dilaudid	5 hours
Vicodin	4-6 hours
Methadone	12-18 hours

Overdose Signs

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



Overdose signs and symptoms of a Narcotic Analgesic may include, but are not limited to:

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

Session 6 – Seven Drug Categories

Conditions That May Mimic Narcotic Analgesic Drug Impairment

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

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There are several conditions that may mimic impairment by a Narcotic Analgesic. These may be, but are not limited to:

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

Drug Matrix

	CNS Dep.	CNS Stim.	Hall.	D.A.	N.A.	Inhalant	Cannabis
HGN	Present	None	None	Present	None		
VGN	Present	None	None	Present	None		
LOC	Present	None	None	Present	None		
Pupil Size	Normal*	Dilated	Dilated	Normal	Constricted		

** Soma, Quaaludes, and some Antidepressants usually dilate pupils*

Seven Drug Categories

Inhalants



Inhalants

Inhalants are breathable chemicals that produce mind altering results.

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 vary widely in terms of the chemicals involved and the specific effects they produce.

Inhalants are one of the most accessible and inexpensive substances of abuse due to their legitimate applications.

They are relatively inexpensive as well as readily available in the home, school, or work environment.

Identification of Inhalants

Three sub-categories of Inhalants:

- Volatile solvents
- Aerosols
- Anesthetic gases



There are three major categories of Inhalant abuse:

- Volatile solvents
- Aerosols
- Anesthetic gases

Volatile Solvents

- Gasoline
- Paint thinners
- Fingernail polish remover
- Dry cleaning fluid
- Liquid correction fluid
- Paint
- Various glues



Volatile solvents include a large number of readily available substances, none of which are intended by their manufactures to be used as drugs. Some of these include:

- Gasoline
- Paint thinners
- Fingernail polish remover (contains Acetone)
- Dry cleaning fluid
- Liquid correction fluid
- Paint (particularly oil or solvent based)
- Various glues (model airplane glue)

Aerosols

Usually inhaled from a secondary source such as a:

- Soaked rag
- Paper bag
- Plastic bag



Aerosols are chemicals discharged from pressurized containers by propellants or compressed gas. These are usually inhaled from a secondary source such as a:

- Soaked rag
- Paper bag
- Plastic bag

Aerosols

Some commonly abused aerosols:

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

Some of the commonly abused aerosols include:

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

Anesthetic Gases

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



Anesthetic Gases are the least abused of the three subcategories of inhalants mainly because of the expense and unavailability.

Anesthetic gases are drugs which allow the user to disassociate pain and are generally used for medical procedures involving surgery.

These can be inhaled from the source directly.

Some of the anesthetic gases include:

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

Methods and Signs of Ingestion

- **Sprayed into an empty soda can and inhaled through opening in top**
- **Sprayed into a balloon and inhaled**
- **Soaked in a cloth (scrunchies/socks) and placed on nose/mouth and inhaled**

Spray paint and other Inhalants:

- Can be sprayed into an empty soda can and inhaled through the opening in the top
- Sprayed into a balloon and inhaled
- Soaked in a cloth (scrunchies/socks) and placed on the nose/mouth and inhaled

Methods and Signs of Ingestion

Persons abusing Inhalants will frequently have the abused substance on their:

- Hands
- Face
- Mouth



Persons abusing Inhalants will frequently have the abused substance on their:

- Hands
- Face
- Mouth

Effects of Inhalants

- Vary widely depending on substance inhaled
- Typically Inhalant abuser will generally appear to be intoxicated on alcohol

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.

Inhalant abusers can be detected and distinguished from other drug abusers because they will usually carry a chemical odor of the inhaled substance about their breath and person.

General Indicators

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

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 slurred speech**
- **Possible nausea**
- **Residue of substance around mouth and nose**

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

Because Inhalants typically cause the user to be confused and disoriented, a subject impaired by an Inhalant will have difficulty estimating time.

Eye Indicators

HGN	Present
VGN	Present (high doses)
LOC	Present
Pupil Size	Normal (may be dilated)

Eye Indicators

HGN – Present

VGN – Present (High Doses)

LOC – Present

Pupil Size – Normal (May be Dilated)

Duration of Effects

Type	Duration
Volatile Solvents	6 – 8 hours
Anesthetic Gases	Very Short
Nitrous Oxide	Less than 5 minutes
Amyl Nitrite and Butyl Nitrite	Few seconds to 20 minutes

Duration of Effects

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Overdose Signs and Symptoms

Coma
Sudden sniffing death

Overdose Signs and Symptoms

The primary overdose sign for an Inhalant is coma or “sudden sniffing death.” This is where the individual stops breathing from inhaling a substance. This may occur during the first experience with an Inhalant.

Conditions That May Mimic Drug Impairment

Severe head injuries
Inner ear disorders/Equilibrium

Conditions That May Mimic Drug Impairment

There are two conditions that may mimic impairment by an Inhalant. These may be, but are not limited to:

- Severe head injuries
- Inner ear disorders/Equilibrium

Drug Matrix

	CNS Dep.	CNS Stim.	Hall.	D.A.	N.A.	Inhalant	Cannabis
HGN	Present	None	None	Present	None	Present	
VGN	Present	None	None	Present	None	Present	
LOC	Present	None	None	Present	None	Present	
Pupil Size	Normal*	Dilated	Dilated	Normal	Constricted	Normal**	

**Soma, Quaaludes, and some Antidepressants usually dilate pupils
 **Normal (average ranges) but may be dilated*

Seven Drug Categories Cannabis



Cannabis

Cannabis

- **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**

Cannabis is a category of drugs derived primarily from various species of plants, such as Cannabis Sativa and Cannabis Indica.

The drugs in this category are the most widely abused illicit drugs.

They can be extremely impairing even though they are often believed to be fairly benign.

The primary psychoactive ingredient in Cannabis is:

- Delta-9 Tetrahydrocannabinol (THC)

THC is found primarily in the leaves and flower of the marijuana plant.

Different varieties of Cannabis contain various concentrations of THC.

Marijuana is usually found as green leaves.

Cannabis Category

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

The Cannabis category includes:

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

Forms of Cannabis



Marijuana



Hashish



Hash Oil



Marinol

Marijuana is the most common and well-known of the drugs in this category, but there are other forms as well.

Marinol

- **A synthetic form of Cannabis**
- **Has a legitimate medicinal use as an anti-vomiting agent**
- **Commonly associated with cancer chemotherapy**
- **Other uses include treatment of glaucoma or as an appetite enhancer for anorexia disorders**

Marinol, a synthetic form of Cannabis, has a legitimate medicinal use as an anti-vomiting agent, commonly associated with cancer chemotherapy.

Other forms are used for glaucoma patients or as an appetite enhancer for anorexia disorders.

THC Concentrations

Effects of Cannabis depend on strength of THC in dose consumed.

- Decades ago, peaked at relatively low levels (3-6%)
- Current levels are being reported at more than 30%

THC Concentrations

The effects of Cannabis depend on the strength of the THC in the dose consumed.

THC concentrations decades ago, peaked at relatively low levels (3-6%), however, current levels are being reported at more than 30%.

The increase in THC levels is due to hybridization and better cultivation techniques used by producers.

There are several chemicals in marijuana smoke. Some of these chemicals are water soluble (meaning they combine with the water) and some are not (THC).

Synthetic Cannabinoid Products

- Olive colored herbs
- Combination of herbs
- Plant materials



Synthetic Cannabinoid Products

Synthetic cannabinoid products typically include olive colored herbs, combination of herbs, or plant materials enhanced with a THC synthetic analog. When smoked, synthetic cannabinoid products can produce stimulant and/or hallucinogenic effects.

Synthetic Cannabinoid Products Effects

- **Panic attacks**
- **Agitation**
- **Tachycardia (range of 110 to 150 BPM)**
- **Elevated blood pressure**
- **Anxiety**
- **Pallor**
- **Numbness and tingling**



Synthetic Cannabinoid Products Effects

They have many adverse effects that include:

- Panic attacks
- Agitation
- Tachycardia (range of 110 to 150 BPM)
- Elevated blood pressure
- Anxiety
- Pallor
- Numbness and tingling

Users report effects lasting between 30 minutes and 2 hours.

Common brand names for synthetic cannabinoids include K2, Spice, Spice Gold, Spice Diamond, Yucatan fire, Solar Flare, K2 Summit, Genie, PEP Spice, and Fire n Ice to name a few.

Other Forms of Cannabis



Sources indicate “waxy marijuana or wax marijuana is the purest form of cannabis. It contains anywhere from 82-99% THC making it several times more potent than a marijuana bud on a cannabis plant which usually contains 5-28% THC. One hit of wax is supposedly equal to 1-2 full cannabis joints and is reported as being more clear and longer lasting than average marijuana. Wax marijuana is also a medical marijuana product. Typical wax marijuana is golden in color and crumbly; though texture may vary based on type.”

Methods and Signs of Ingestion

- **Usually rolled into cigarettes and smoked**
 - **Small bits/pieces of debris may be found stuck between teeth of user**
 - **Burn marks may be found on thumb and index finger**
- **User may also use a “water pipe” or “bong” to smoke**

Methods and Signs of Ingestions

Marijuana is usually rolled into cigarettes and smoked.

Since these cigarettes lack a filter, small bits and pieces of marijuana debris may be found stuck between the teeth of the user.

Burn marks may be found on the thumb and index finger.

The user may also use a “water pipe” or “bong” to smoke marijuana.

- By passing the marijuana smoke through the water, the smoke is not only more pure but also cooler

Effects of Cannabis

Brief attention span
Divided attention impairment

Effects of Cannabis

People under the influence of Cannabis may not to be able to:

- Pay attention
- May have a very brief attention span

The subjective effects can vary considerably, but they will exhibit divided attention impairment.

The consequences of this in the classroom may be obvious, but the consequences when driving can be fatal.

Effects of Marijuana on Driving

- **Small amounts of marijuana can double chances of motor vehicle crash**
- **Larger doses can triple the risk**
- **Risk is almost 2.7 times higher among Marijuana users**
- **Effects of Marijuana vary between the individual effects of alcohol**

According to a study by the British Medical Journal (2005), even small amounts of marijuana can double the chances of a driver's involvement in a motor vehicle crash and larger doses can more than triple the risk.

According to the Columbia University School of Public Health, the risk of an automobile crash is almost 2.7 times higher among marijuana users than non-users. The more marijuana smoked in terms of frequency and potency, the greater likelihood of a crash.

A study published by the National Institute of Health Public Access (2009) showed the effects of marijuana vary more between the individual than the effects of alcohol. The study also revealed laboratory tests and driving studies show, "Cannabis may acutely impair several driving-related skills in a dose-related fashion but the effects between individuals varies more than they do with alcohol because of tolerance, the difference in smoking techniques and different absorption of THC."

General Indicators

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



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General Indicators

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

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

Cannabis affects the user’s ability to estimate time and distance.

Eye Indicators

HGN	None
VGN	None
LOC	Present
Pupil Size	Dilated (possibly normal)

Eye Indicators

HGN – None

VGN – None

LOC – Present

Pupil Size – Dilated (Possibly normal)

Onset and Duration of Marijuana's Effects

- **Within minutes – User begins to feel and exhibit effects**
- **10-30 minutes – Peak effects are reached**
- **2-3 hours – User continues to feel and exhibit effects**
- **3-5 hours – User feels “normal”**

Duration of Effects

Effects from smoking Cannabis are felt within minutes and reach their peak in 10-30 minutes. Typical marijuana smokers experience a high that lasts approximately two hours. Most behavioral and physiological effects return to baseline within 3-5 hours after drug use, although some residual effects in specific behaviors can last up to 24 hours.

- A 1985 Stanford University study showed pilots had difficulty in holding patterns and in lining up with runways for up to 24 hours after using Marijuana

Depending on the amount smoked and on the concentration of THC in the Marijuana, the person will continue to feel and exhibit the effects for 2–3 hours.

- In 1990, a second Stanford University study showed
 - Marijuana impaired performance at .25, 4, 8, and 24 hours after smoking.
 - While seven of the nine pilots showed some degree of impairment at 24 hours after smoking Cannabis, only one reported any awareness of the drug’s effects

Generally, the person will feel “normal” within 3–5 hours after smoking Marijuana.

- The user may be impaired long after the euphoric feelings have ceased

Duration of Effects

Dronabinol/Marinol

- Onset 30 – 60 minutes
- Peak 2 – 4 hours
- Appetite Stimulant Up to 24 hours

Dronabinol has an onset of 30 minutes to 1 hour with peak effects occurring between 2 and 4 hours. It can stimulate appetite for up to 24 hours. **(Depends on substance consumed)**

Duration of Effects

Other Forms of Cannabis

- **Onset** **Immediate**
- **Peak** **Varies***
- **Duration** **Varies***

Overdose Signs and Symptoms

- Paranoia
- Fatigue



Overdose signs and symptoms of Cannabis may include, but are not limited to:

- Paranoia
- Fatigue

Generally speaking, Cannabis impairment will not be confused with any other medical condition as noted in the other drug categories.

However, a person diagnosed with an attention deficit disorder may mimic a Cannabis user's inability or unwillingness to pay attention.

Drug Matrix

	CNS Dep.	CNS Stim.	Hall.	D.A.	N.A.	Inhalant	Cannabis
HGN	Present	None	None	Present	None	Present	None
VGN	Present	None	None	Present	None	Present	None
LOC	Present	None	None	Present	None	Present	Present
Pupil Size	Normal*	Dilated	Dilated	Normal	Constricted	Normal**	Dilated***

**Soma, Quaaludes, and some Antidepressants usually dilate pupils*

***Normal (average range) but may be dilated*

****Dilated, may be normal (average range)*