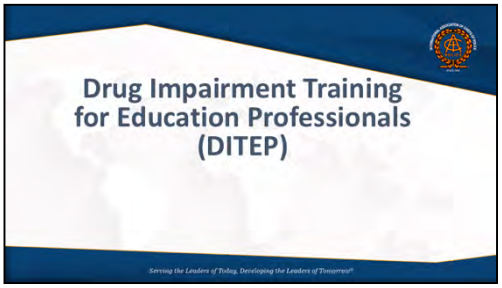
Drug Information Training for Educational Professionals (DITEP)

Day Two

Participant Manual
2017 Edition

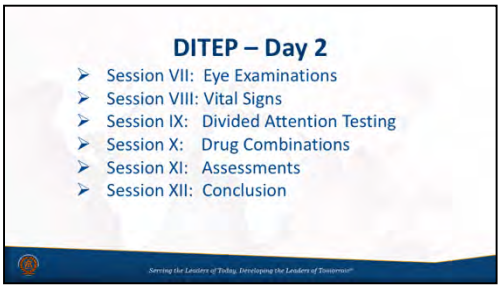
INTERNATIONAL ASSOCIATION of CHIEFS OF POLICE
Serving the Leaders of Today,
Developing the Leaders of Tomorrow®

DAY TWO of the DITEP Training

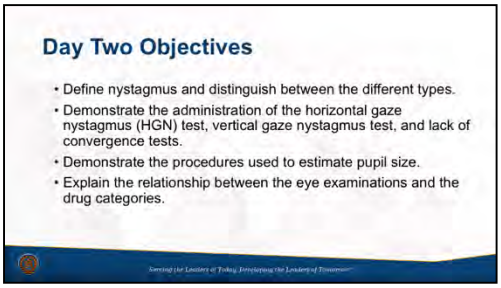


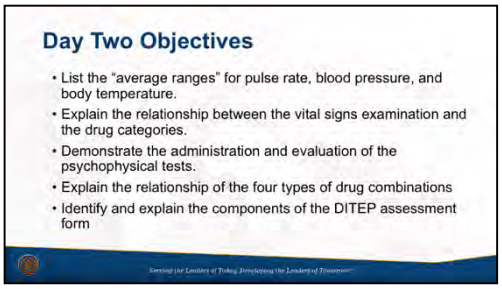
Day Two Agenda:

Session VII – Eye Examinations
Session VIII – Vital Signs
Session IX – Divided Attention Testing
Session X – Drug Combinations
Session XI – Assessments
Session XII – Conclusion and Testing



Day Two Objectives:





SESSION SEVEN: EYE EXAMINATIONS

A. The Eyes – Windows to the Brain

People often call eyes “the windows to the soul.” Even many researchers agree, the eyes do provide a lot of useful information about another person’s emotional state.

It has also been said that the eyes are the “windows to the brain.” **“**The eye is the window into the brain and by measuring how healthy the eye is, we can determine how healthy the rest of the brain is." *Source: Peter A. Calabresi, M.D., Professor of Neurology, Johns Hopkins University School of Medicine.*

We also can gather considerable information about a person’s drug use and condition from looking at his/her eyes.

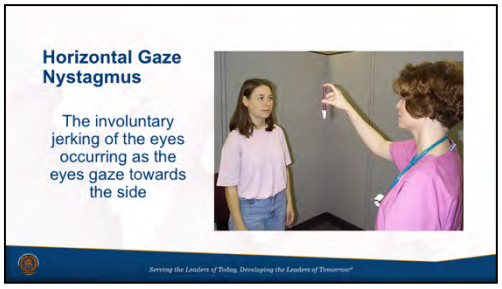
B. How the Seven Drug Categories Affect the Eyes

- Some indicators are immediately visible
- Some indicators need to be tested for

Two things we check for when trying to identify drug impairment and certain drug categories are:

- Nystagmus (An involuntary jerking of the eyes)
- Pupil Size

C. Horizontal Gaze Nystagmus



Horizontal Gaze Nystagmus (HGN) is defined as: Involuntary jerking of the eyes occurring as the eyes gaze toward the side. *(Source: Drug Evaluation and Classification Program)*

In addition to being involuntary,

- a person is usually unaware it is happening, and
- the person is powerless to stop or control it

Key summary points of HGN include:

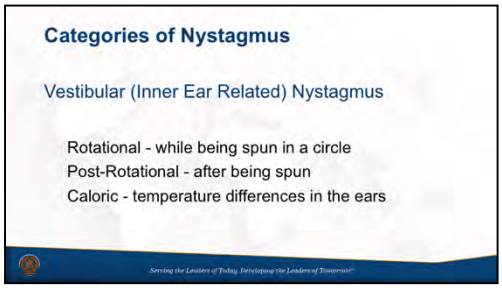
- It is s a natural, normal phenomenon
- Alcohol and certain other drug categories cause this phenomenon

D. Categories of Nystagmus

HGN is not the only type of nystagmus. There are numerous circumstances under which the eyes will jerk involuntarily.

It is important to know some of the other common types of nystagmus, to be aware of their potential impact on our observations.

Nystagmus of several different origins may be seen. There are three general categories of nystagmus.



Vestibular Nystagmus is caused by movement or action to the vestibular system.

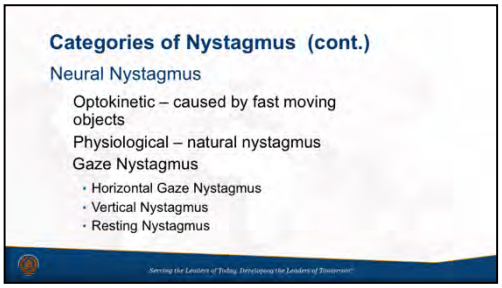
Types of vestibular nystagmus include:

- ***Rotational Nystagmus*** occurs when the person is spun around or rotated rapidly, causing the fluid in the inner ear to be disturbed. If it were possible to observe the eyes of a rotating person, they would be seen to jerk noticeably.

- ***Post Rotational Nystagmus*** is closely related to rotational nystagmus. When the person stops spinning, the fluid in the inner ear remains disturbed for a period of time and the eyes continue to jerk.

- ***Caloric Nystagmus*** occurs when fluid motion in the canals of the vestibular system is stimulated by temperature. For example: putting warm water in one ear and cold in the other.

Nystagmus can also result from ***neural activity.***

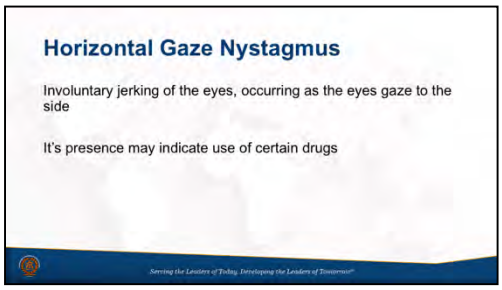


- ***Optokinetic Nystagmus*** occurs when the eyes fixate on an object that suddenly moves out of sight, or when the eyes focus on sharply contrasting moving images. An example would be looking at a rapidly spinning wheel that has alternating black and white spokes.

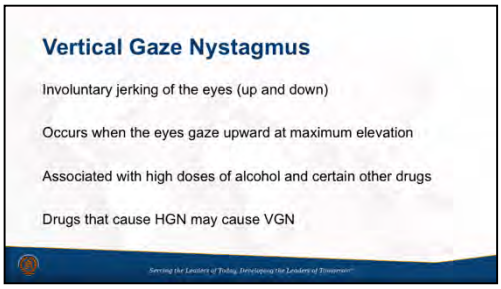
- ***Physiological Nystagmus*** is the natural nystagmus that keeps the sensory cells of the eye from tiring. This happens to us all the time. This type of nystagmus produces extremely minor tremors or jerks of the eyes. These tremors are generally too small to be seen with the naked eye. Physiological nystagmus without added influence does not affect the HGN test.

- ***Gaze Nystagmus*** occurs as the eyes move from the center position. It is separated into three types:

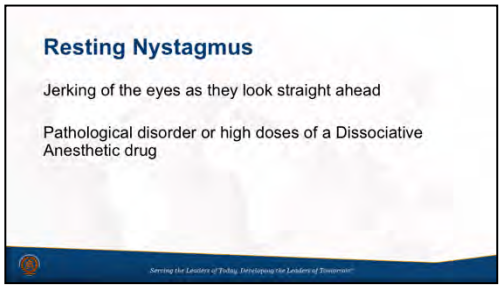
- ***Horizontal Gaze Nystagmus*** occurs as the eyes gaze to the side. This examination provides the first and most valid test in the standardized field sobriety testing battery used by police officers. This test is most accurate for determining alcohol influence. Its presence may also indicate use of Dissociative Anesthetics, Inhalants and CNS Depressants.



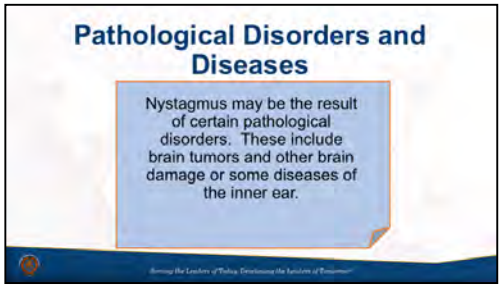
- ***Vertical Gaze Nystagmus*** occurs as the eyes gaze up. It is defined as an involuntary jerking of the eyes occurring as the eyes are held at maximum elevation. The presence of this type of nystagmus is associated with the use of Dissociative Anesthetics, and high doses of CNS Depressants (including alcohol) or Inhalants *for that individual*.



- ***Resting Nystagmus*** is referred to as jerking as the eyes look straight ahead. This condition is not frequently seen



Nystagmus may also be caused by certain pathological disorders. These include brain tumors, other brain damage and some disorders of the inner ear.



E. Medical Impairment

There are examinations you will conduct to assess possible medical impairment. They include:

- Equal tracking ability
- Estimation of pupil size

Equal tracking ability can be affected by certain medical conditions or injuries involving the brain.

By passing the stimulus across both eyes, you can see if both eyes are tracking equally.

If a person has sight in both eyes, but they fail to track together, there is a possibility that the person is suffering from an illness or an injury to the brain.

If the two eyes do not track together, there is a possibility that the person may be suffering from a neurological disorder.

If a subject's eyes do not track together, *they can not perform the HGN test.*

Pupil size will be affected by some medical conditions or injuries.

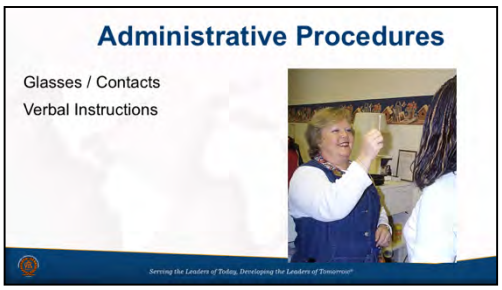
If the two pupils are distinctly different in size, it is possible that the subject may have an artificial eye (glass or plastic prosthesis inserted in the eye socket to replace the eyeball), or may be suffering from a recent head injury or neurological disorder.

If there is an indication the person may be suffering from a recent head injury, medical attention should be considered.

F. Administrative Procedures for Horizontal Gaze Nystagmus

To properly conduct the HGN test, begin by instructing the subject to remove any eye glasses if worn.

It doesn't matter whether the subject can see the stimulus with perfect clarity, as long as they can see it.



Give the subject the appropriate verbal instructions, which include:

- Put your feet together with your arms at your sides
- Keep head still
- Keep your eyes focused on my (stimulus)
- Follow movement of the stimulus with your eyes only
- Keep focusing on stimulus until told the test is over

Position the stimulus approximately 12-15 inches in front of the subject's nose, and slightly above eye level to commence the test.

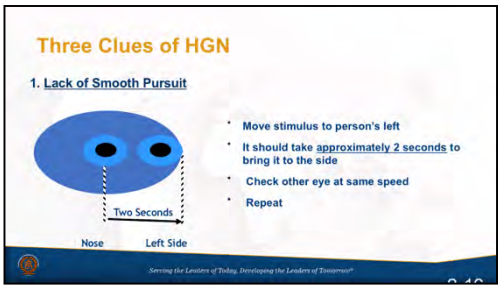
Check for equal pupil size and resting nystagmus.

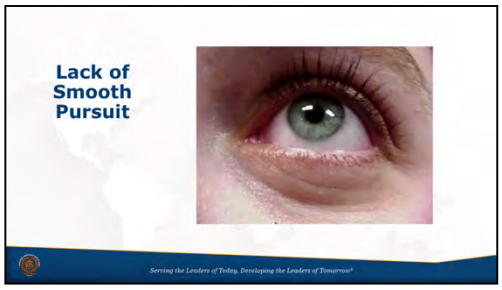
Check for equal tracking.

Check the left eye for the **Lack of Smooth Pursuit.**

If the eye is observed to be jerking while moving, *this is a clue.*

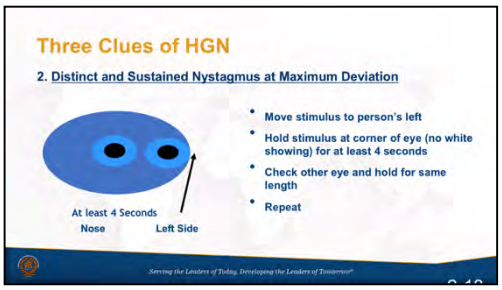
Check the right eye for the lack of smooth pursuit.





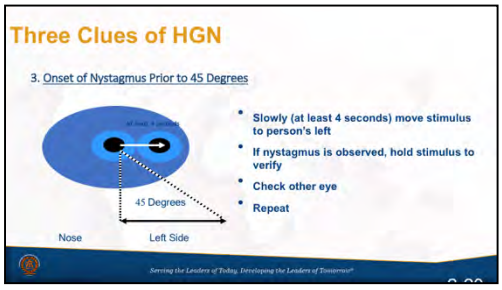
Next, check the left eye for the **Distinct and Sustained Nystagmus at Maximum Deviation** clue.

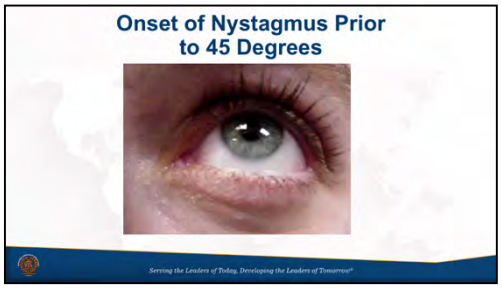
Check the right eye for the distinct and sustained nystagmus at maximum deviation clue.



Check the left eye for the **Onset of Nystagmus Prior to 45 Degrees** clue.

Check the right eye for the onset of nystagmus prior to 45 degrees clue.





It is not difficult to determine when the eye has reached the 45-degree point, but it does require some practice. By starting with the stimulus approximately 12-15 inches directly in front of the nose, 45-degrees will be reached when the stimulus has been moved an equal distance to the side.

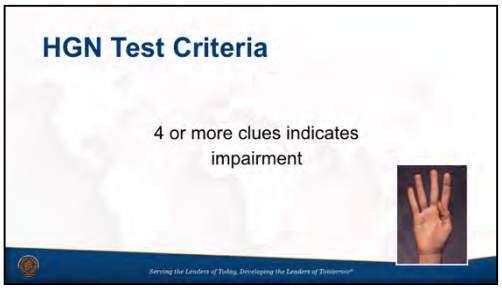
Two other important indicators can be used to determine if the eye is within 45 degrees. They are:

- At 45 degrees, some white usually will still be visible in the corner of the eye (for most people).

By starting the stimulus approximately 12-15 inches in front of the subject's nose, 45 degrees will usually be lined up with, or slightly beyond, the edge of the subject's shoulder.

Total the clues.

- Maximum number of clues possible for each eye is three (3)
- Total maximum number of clues for both eyes
- Four out of six clues is consistent with *impairment* by CNS Depressants, Dissociative Anesthetics, or Inhalants.



For most subjects nystagmus clues will appear in the sequence listed.*

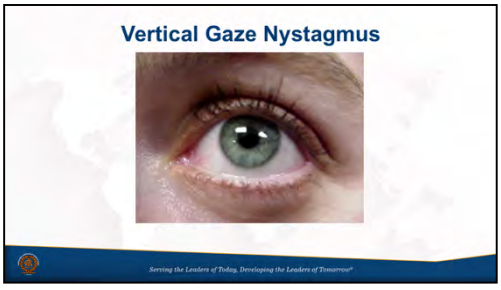
Most subjects will exhibit identical clues in both eyes.

It is unlikely the eyes of someone under the influence of alcohol or drugs will react totally different.

G. Vertical Gaze Nystagmus:

The **Vertical Gaze Nystagmus** test is very simple to administer and includes the following:

- Position the stimulus horizontally, about 12-15 inches in front of the subject's nose
- Instruct the subject to hold the head still and follow the stimulus with their eyes only
- Raise the stimulus until the subject's eyes are elevated as far as possible. Hold the elevated position for approximately four seconds
- Watch closely for clear evidence of the eye jerking up and down



Vertical Nystagmus is often present in subjects under the influence of some Dissociative Anesthetics, such as PCP or PCP analogs.

Vertical Gaze Nystagmus may also be present in subjects under the influence of high doses (for that person) of CNS Depressants or Inhalants.

H. Results of HGN and VGN

If horizontal gaze nystagmus is observed it is likely the subject may have taken a CNS Depressant, Dissociative Anesthetic, an Inhalant, or a combination of drugs including one of these drug categories.

If vertical gaze nystagmus is observed it may be the subject took a Dissociative Anesthetic or a high dose of CNS Depressants or Inhalants for that individual.

I. HGN and VGN Demonstrations

Demonstration of Horizontal Gaze Nystagmus (HGN) test. The three steps of the HGN test are:

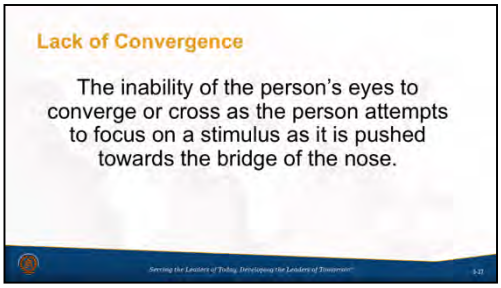
- Check for lack of smooth pursuit
- Check for distinct and sustained nystagmus at maximum deviation
- Estimation of the angle of onset

Demonstration of Vertical Gaze Nystagmus

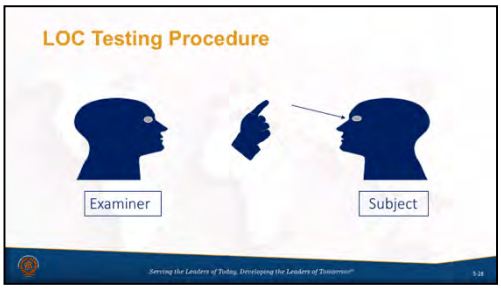
Practice HGN and VGN.

J. Lack of Convergence

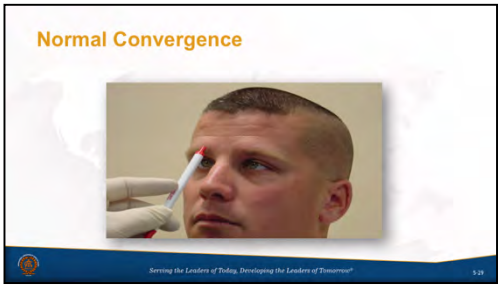
In simple terms, Lack of Convergence (LOC) is the inability of an individual to cross the eyes when focusing on a stimulus as it is moved towards inward towards the nose.



Administering the LOC test includes the following steps:

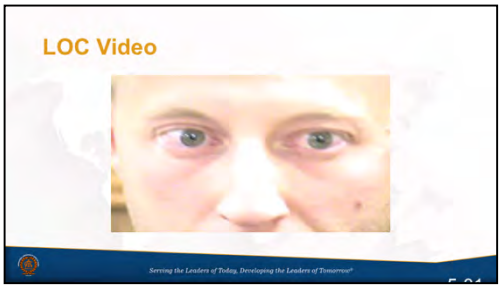


- Instruct the person to keep his head steady, and follow the stimulus with their eyes only
- Position the stimulus approximately 12 to 15 inches from the eyes (if the subject wears glasses for near vision, they should put them on for the test)
- Begin moving the stimulus in a slow circle in front of the subject's face (several passes may be needed to observe the person's ability to track the stimulus)

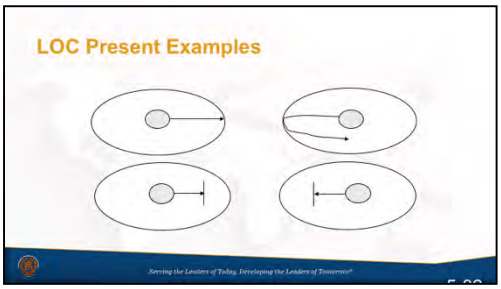


- Pause after completing the slow circle movement and then slowly move (push) the stimulus towards the bridge of the subject's nose
- Stop and hold the stimulus approximately 2" – 3" from the subject's bridge of the nose, holding it there for approximately 1 second

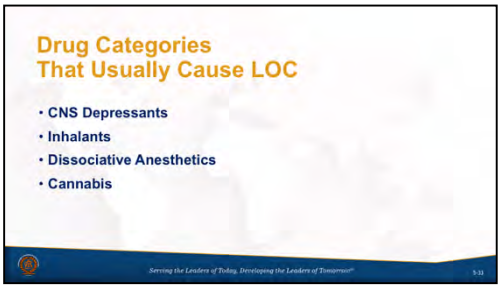
- Closely observe the eyes and record the eyes' movement
- If the eyes follow the stimulus to the center (eyes cross) then lack of convergence is <u>not</u> present
- If one eye drifts away from the center towards the side, or one or both eyes do not move inward, then lack of convergence <u>is</u> present.



- Record the results of this test showing the movement of both eyes with an arrow



The check for lack of convergence can provide another clue as to the possible presence of CNS Depressants, Dissociative Anesthetics, Inhalant and Cannabis impairment.



K. Lack of Convergence Demonstration and Practice

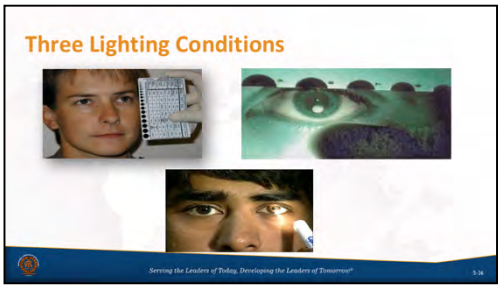
Participants' initial practice of the test for lack of convergence.

L. Estimation of Pupil Size

A person's pupil size can provide important information about the category of drugs an individual may be using.

Pupil size is estimated in three different lighting conditions.

Within the DEC Program, there are “normal ranges” for each lighting condition.



Pupils that appear outside these normal ranges can help in assessing drug impairment and the possible drug category causing that impairment.

Estimation of pupil size requires the use of a **pupilometer.**

The estimation of pupil size is conducted using the following steps:

- Hold the pupilometer alongside the subject’s eye. (The pupilometer should be positioned even with the subject’s eyeball)
- Move the pupilometer up or down until you find the darkened circle (or half circle) that appears to be approximately the same size as the subject’s pupil

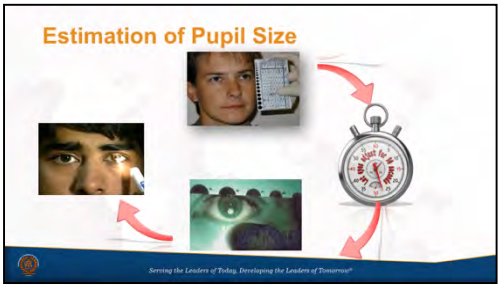
For DEC Program purposes, normal pupil size in Room Light is **2.5 - 5.0 mm.**

M. Dark Room Examination of Pupil Size

A low-intensity penlight and a pupilometer are needed for this examination. Additionally, a room capable of being completely dark *(as near total darkness as possible*) will be needed.

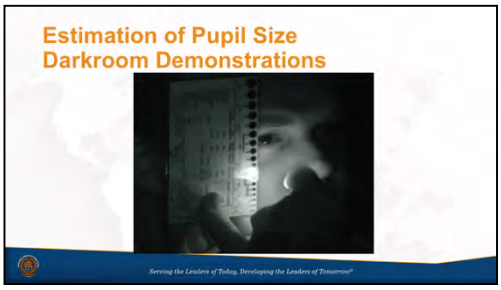
It is highly recommended that at least two people are in the dark room with the individual under the influence of drugs.

The procedures for checking for Room Light are:



- Have the subject look straight ahead and fixate their eyes on something in the distance
- Bring the pupilometer up alongside the subject’s left eye
- Using the pupilometer, find the circle or semi-circle closest in size to the subject’s pupil and record the size
- Repeat the procedure for the right eye

The procedures for the checking Near Total Darkness are:



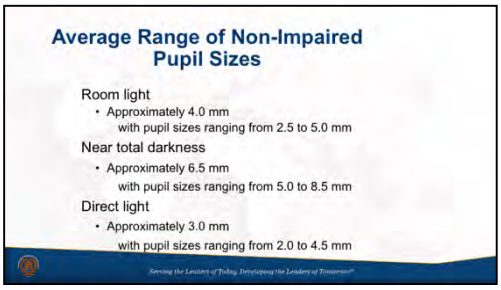
- Explain the procedures to the subject prior to darkening the room
- Completely darken the room or to near total darkness
- Wait approximately 90 seconds to allow everyone's eyes to adjust to the darkness
- Completely cover the tip of the penlight with a finger or thumb, so that only a reddish glow and no white light emerges (demonstrate)
- Position the pupilometer alongside the subject's face at eye level
- Bring the glowing tip of the penlight up toward the subject's left eye until close enough to distinguish the pupil from the colored portion of the eye (iris)
- Continue to hold the glowing red tip in that position and alongside the subject's left eye and locate the circle or semicircle that is closest in size to the pupil
- Repeat this procedure for the subject's right eye

The DEC Program normal range for Near Total Darkness is **5.0 - 8.5 mm**

The procedures for checking for Direct Light are:

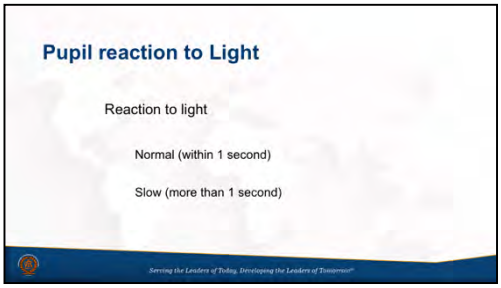
- Position the pupilometer alongside the subject's left eye
- Bring the penlight from the side of the subject's face, directly into the left eye
- Position the penlight so that it illuminates and approximately fills the subject's eye socket
- Hold the penlight in that position for approximately 15 seconds and locate the circle or semi-circle that is closest in size to the subject's pupil
- Record the estimate and repeat the procedure for the subject's right eye

The DEC Program normal range for Direct Light is **2.0 - 4.5 mm.**



Assessment of the subject's pupil reaction to light takes place immediately before the check of pupil size under direct light.

It is done when the penlight beam is directed into the subject's eye and noting how the pupil reacts.



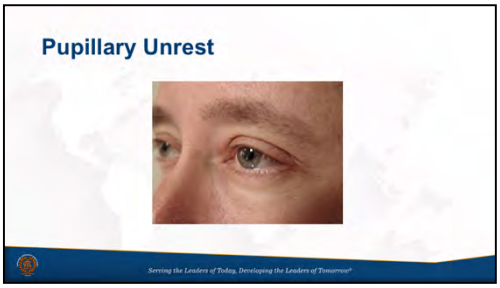
Under ordinary conditions, the pupil should react very quickly, and constrict noticeably when the light beam strikes the eye.

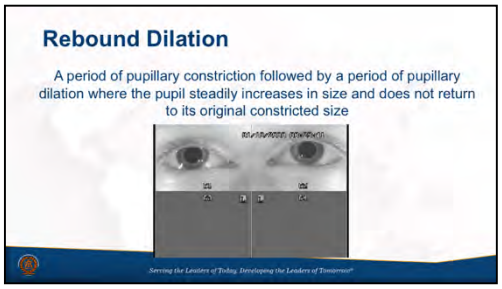
Under the influence of certain categories of drugs, the pupil's reaction may be very sluggish, or there may be no visible constriction at all.

When determining pupil reaction to light, the light should be positioned into the subject's eye for approximately 15 seconds to assess.

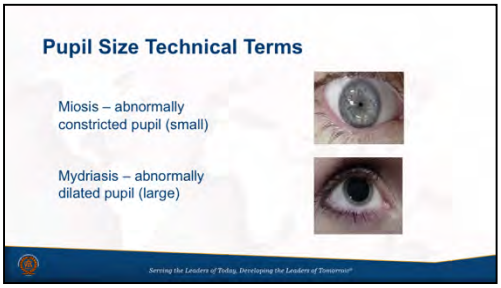
The check for Rebound Dilation is conducted during this 15 second period.

After completing the procedure for the left eye, repeat the procedure for the right eye.





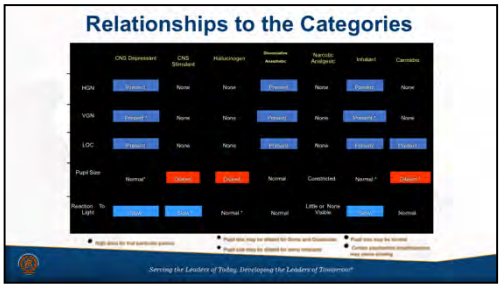
Participants' initial practice in assessing the pupil's reaction to light.



N. Relationship of Drug Categories to the Eye Examination

Three of the seven drug categories cause horizontal gaze nystagmus (HGN) and four do not. The three that cause HGN are:

- CNS Depressants, Inhalants and Dissociative Anesthetics



Any drug that will cause HGN will induce Vertical Gaze Nystagmus (VGN) if the dose is high for that individual.

Dissociative Anesthetics induce VGN, as do CNS Depressants and Inhalants at a high dose for that individual.

An important and interesting fact is drugs that cause HGN and VGN usually do not affect pupil size. Drugs that do not cause HGN and VGN will usually affect pupil size.

CNS Stimulants and Hallucinogens usually cause the pupils to dilate.

Cannabis usually causes the pupils to dilate, but may leave them normal in size.

Cannabis also causes red, bloodshot eyes.

Narcotic Analgesics usually cause the pupils to be smaller in size (constricted).

CNS Depressants, Dissociative Anesthetics and Inhalants usually leave the pupils normal in size.

Certain drug categories cause the pupils to have a different reaction to light.

CNS Depressants, Stimulants, and Inhalants cause the eyes to have a slow reaction to light.

Hallucinogens, Dissociative Anesthetics, and Cannabis usually have a normal (within one second) reaction to light.

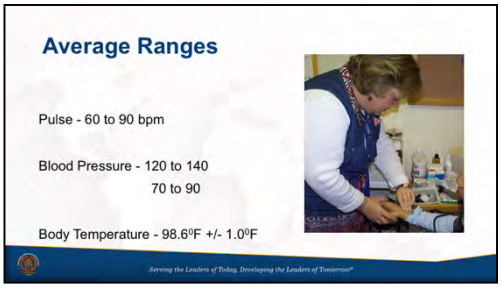
Narcotic Analgesics cause a little or none visible reaction to light.

SESSION EIGHT: EXAMINATION OF VITAL SIGNS

A. Purpose of the Examinations:

The examination of a person's vital signs can provide useful information concerning the possible presence or absence of various categories of drugs. The Drug Evaluation and Classification (DEC) Program has established average vital signs, which are also relevant to the DITEP evaluation process. They include:

- Pulse rate: 60 to 90 beats per minute.
- Blood pressure: Systolic of 120-140 mm/Hg and Diastolic of 70-90 mm/Hg
- Body Temperature: 98.6 +/- 1 degree Fahrenheit



Different categories of drugs affect these vital signs in different ways. Such as:

- Certain categories speed up the body and elevate the vital signs
- Some categories slow down the body and lower the vital signs

B. Procedures for Conducting Vital Signs Examinations

Systematic examination of the vital signs gives us useful information concerning the possible presence or absence of various drug categories.

Measurement of Pulse Rate

Pulse is the expansion and contraction of an artery generated by the pumping action of the heart. Pulse rate is the number of pulsations in an artery per minute.

The process for measuring pulse rate is:

- Locate the pulse using the subject's radial artery (in or near the natural crease of the wrist)
- Place the tips of the index finger and middle finger into the crease of the subject's wrist
- Once the pulse is located, count the pulses for 30 seconds and multiply by two

Do's and Don'ts of Measuring Pulse Rate:

- Don't use the thumb to apply pressure while measuring a subject's pulse

- Generally, the Radial Artery will be the only pulse point checked

Measurement of Blood Pressure

Measuring a subject's blood pressure is not as easy as measuring pulse. Measuring blood pressure requires specialized equipment.

The device used for measuring blood pressure is called a sphygmomanometer. It has a special cuff that is wrapped around the subject's arm and inflated with air pressure.

The blood pressure measurement is taken by:

- Positioning the cuff on the subject's bicep so that the tubes extend down the middle of the arm
- Wrap the cuff snuggly around the bicep
- Clip the manometer to the subject's sleeve
- Twist the pressure control value all the way to the right
- Put the stethoscope earpieces in your ears
- Place the stethoscope diaphragm or bell over the brachial artery
- Inflate the bladder (cuff) with enough air pressure to cut the flow of blood (Typically inflate to about 180 - 200 mmHg)
- Slowly release the air pressure (about 2 mmHg per second) and keep your eyes on the gauge and listen for the tapping sounds (Korotkoff sounds)
- Slowly release the air pressure
- Continue to release slowly until the first tapping is heard - that level will be the Systolic blood pressure
- Continue to release the air pressure until the blood flows continuously through the artery and the tapping is no longer heard – that level will be the Diastolic blood pressure
- Record the measurements

Do's and Don'ts of Measuring Blood Pressure:

- If you inflate the bladder and then need to repeat the measurement, wait at least three minutes to allow the subject's artery to return to normal
- Wait for 3 minutes to repeat the measurement if needed
- Don't re-inflate the cuff once you start releasing the pressure

The body temperature measurement is taken by:

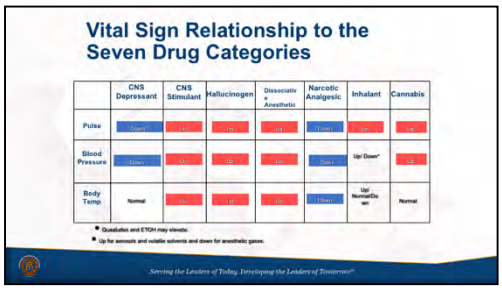
- Placing the oral thermometer covered with a plastic sleeve under the subject's tongue
- Waiting until the thermometer beeps and recording the result

Do's and Don'ts of Measuring Body Temperature:

- Ensure the thermometer remains under the subject's tongue
- Refrain from letting the subject eat or drink anything immediately prior to measure temperature
- Ensure a fresh disposable mouthpiece (sleeve) is used each time

C. Relationship of Drug Categories to the Vital Signs Examinations

All seven drug categories will ordinarily affect pulse rate and blood pressure.



Two categories will usually lower pulse and blood pressure.

CNS Depressants usually lower pulse and blood pressure, although alcohol, Quaaludes and possibly some anti-depressants may elevate the pulse.

Narcotic Analgesics usually lower pulse and blood pressure.

The other five drug categories all tend to elevate pulse.

Most drugs that elevate the pulse also elevate blood pressure.

CNS Stimulants, Hallucinogens, Dissociative Anesthetics and Cannabis usually elevate blood pressure.

Inhalants, such as volatile solvents and aerosols elevate blood pressure. Anesthetic gases typically lower blood pressure. Anesthetic gases include nitrous oxide, amyl nitrite and ether.

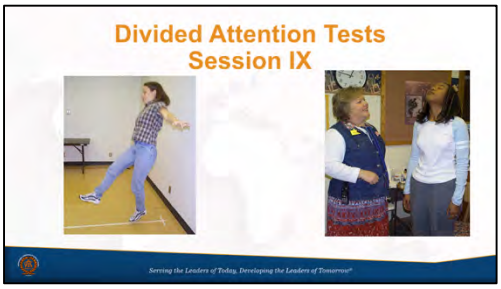
There are three drug categories that typically elevate the body temperature; CNS Stimulants, Hallucinogens and Dissociative Anesthetics.

Depending on the substance used, Inhalants can cause the temperature to be elevated (up), lowered (down) or normal.

Narcotic Analgesics usually lower body temperature.

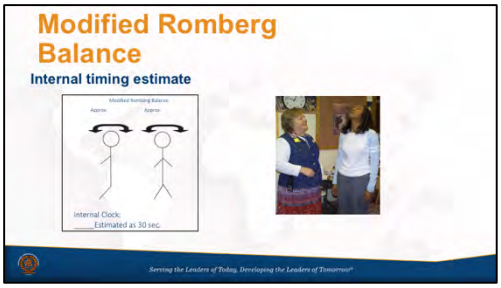
The remaining two drug categories do not usually affect body temperature.

SESSION NINE: DIVIDED ATTENTION TESTS



A. Modified Romberg Balance

The Modified Romberg Balance test is the first divided attention test administered during the DITEP drug assessment. The test requires the individual to stand with their feet together, their head tilted back slightly, and their eyes closed.

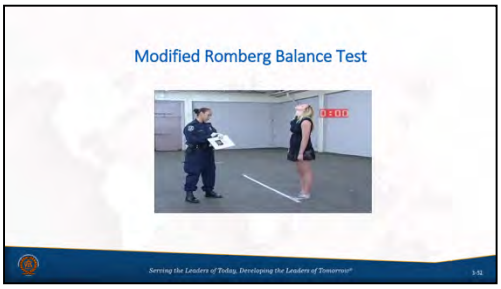


The test also requires that the subject attempt to estimate the passage of thirty seconds. To do this, the subject must be instructed to open his/her eyes, tilt the head forward, and say "stop" when he or she thinks that thirty seconds have elapsed.

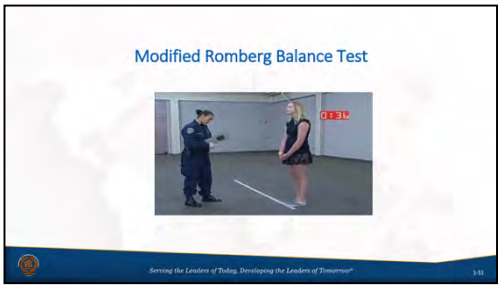
This test requires recording how much time elapsed from the start of the test until the subject opened his/her eyes.

If the subject continues to keep the eyes closed for 90 seconds, the evaluator should stop the test and record the fact that it was terminated at 90 seconds.

<u>Procedures for the Modified Romberg Test</u>

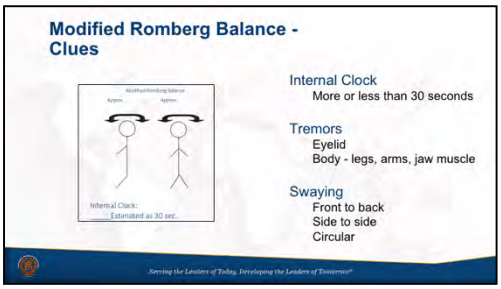


- Have the subject stand with his/her feet together and arms at the sides
- Instruct the subject to watch you and listen to the instructions, and to not start the test until told to start
- When told to start the test, have the subject tilt his/her head back slightly (demonstrate) and close his/her eyes
- Instruct the subject that once he/she has closed their eyes with the head slightly tilted back, have them estimate the passage of 30 seconds
- Instruct the subject that as soon as he/she thinks 30 seconds have elapsed to open their eyes and tilt their head forward and say "Stop"
- Record the observations and the time that the subject estimated



Demonstrations of the Modified Romberg Balance Test

Recording the Results of the Modified Romberg Balance Test



Some of the impairment indicators that may be observed and should be recorded during this test include:

- Amount that the subject sways
- Eyelid or body tremors
- Actual amount of time that the subject keeps the eyes closed

To record swaying, the evaluator must estimate how many inches the subject swayed, either front-to-back, left-to-right, or both.

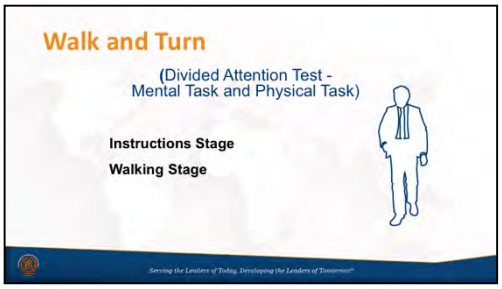
To record the time estimation, simply record the number of seconds that the subject kept his/her eyes closed.

Hands on Practice

B. Walk and Turn Test

The Walk and Turn test is the second divided attention test administered during the DITEP drug assessment.

The test is administered in the same way as used for field sobriety testing purposes.

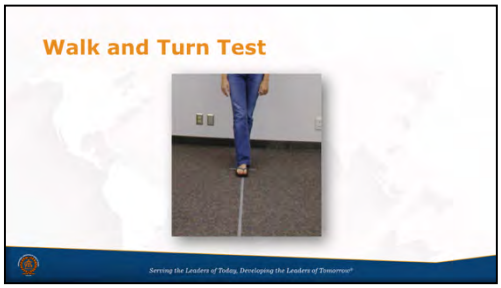


Review of Walk and Turn test administrative procedures

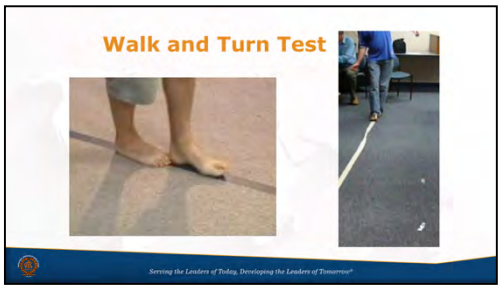
The test has two stages:

- Instructions stage
- Walking stage

Procedures for the Walk and Turn Test



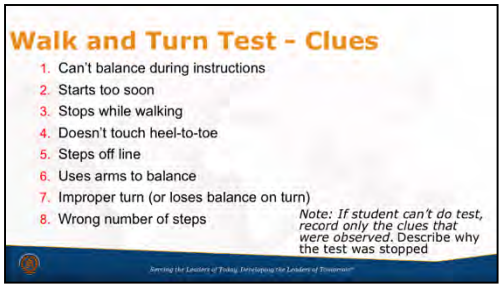
- Instruct the subject to stand on the line heel to toe, with the right foot ahead of the left foot, and keeping the arms at the sides



- Make sure the subject does not begin the test until told to begin
- Tell the subject that when told to begin, to take nine heel to toe steps on the line, to turn, and to return nine heel to toe steps back down the line
- Tell the subject that at the ninth step to leave his/her front (or lead) foot on the line, then turn on the front foot taking a series of small steps
- The evaluator must demonstrate walking heel to toe and also demonstrate the turn taking a series of small steps
- Tell the subject to watch his/her feet while walking, and to count the steps out loud
- Remind the subject to keep his/her arms at their sides throughout the test
- Tell the subject to not stop walking until the test is completed
- Ensure that the subject understands the instructions. If so, advise the subject to begin the test

Demonstrations of the Walk and Turn Test

Recording the Results of the Walk and Turn Test



Possible clues of impairment that may be observed during the Walk and Turn test include:

Instructions Stage Clues:

- Can't balance during instructions (breaks from the heel/toe stance)
- Starts too soon

Walking Stage Clues:

- Stops while walking

- Misses heel-to-toe
- Steps off the line
- Raises arms for balance
- Takes the wrong number of steps
- Improper turn (spins around, loses balance, etc.)

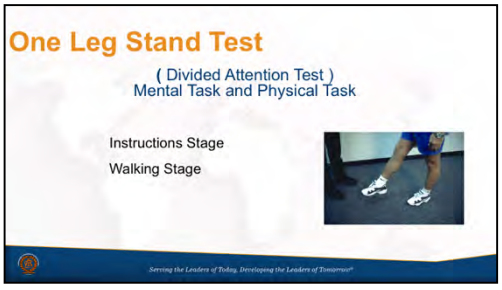
Two out of eight possible clues are consistent with impairment.

Standards for Test Performance

- Arms greater than six inches from the body
- Misses heel/toe greater than ½ inch
- Offer to remove the shoes before performing the test if heels are 2" or higher.

Hands on Practice

C. One Leg Stand



The One Leg Stand is the third divided attention test administered during the DITEP drug assessment.

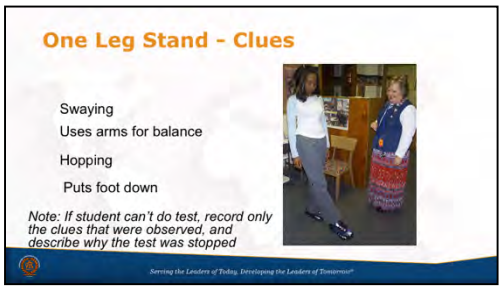
Administrative Procedures for the One Leg Stand Test

This test requires the subject to balance while standing on one leg. The procedures for the test are:

- Instruct the subject to stand with his/her feet together, arms at the side, facing the examiner
- Instruct the subject that he/she will stand on the left foot, and raise the right foot approximately 6 inches off the ground, with the right leg held straight and the raised foot parallel to the floor
- Instruct the subject that he/she must look at the elevated foot during the test
- Instruct the subject that he/she will count out in the following manner: "One thousand one, one thousand two, one thousand three, and so on until told to stop"
- Remind the subject to keep his/her legs straight and keep looking at the elevated foot, while keeping the arms at his/her sides
- Ensure the subject understands the instructions

After the subject completes the test on the left foot, he/she must be told to repeat the test on the right foot.

Recording the Results of the One Leg Stand Test



The clues for the One Leg Stand test are:

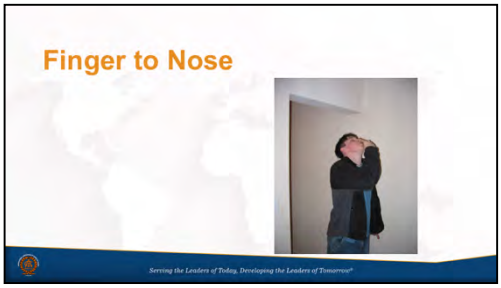
- Sways while balancing
- Uses arms to balance
- Hopping
- Puts foot down

Two out of four clues are consistent with impairment

Hands on Practice

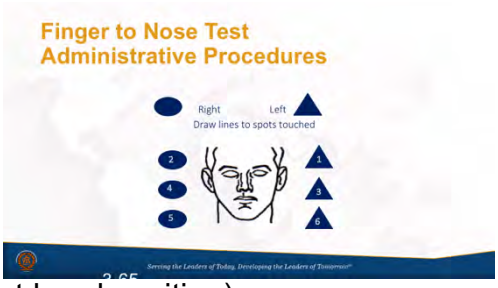
D. Finger to Nose Test

The Finger to Nose test is the final divided attention test used in the DITEP drug assessment.



The Finger to Nose test differs from the other three tests in that the examiner must continue to give instructions to the subject throughout the test.

Administrative Procedures for the Finger to Nose Test



The subject should be instructed to stand with their feet together, arms down at the sides, facing the examiner.

Instruct the subject to rotate the palms forward and then to extend the index fingers from the closed hands. (The examiner should demonstrate the correct hand position).

Then the subject is instructed to touch the tip of the index finger to the tip of the nose.

The examiner should demonstrate to the subject exactly how he/she is expected to touch the fingertip to the nose.

The examiner then gives a series of commands, i.e., left, right, etc. to indicate which fingertip is to be brought to the nose.

Instruct the subject that he/she is expected to return the arm to the side immediately after touching the fingertip to the nose.

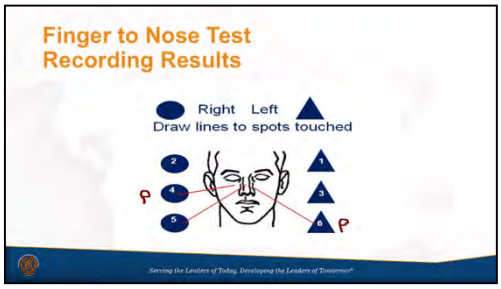
The subject is also instructed to tilt the head back slightly and to close their eyes, and keep them closed until the examiner says to open them.

For the Finger to Nose test, the subject is given the following sequence of commands: left, right, left, right, right, left.

Instructor Led Demonstrations

Recording the Results of the Finger to Nose Test

The Finger-to-Nose results are recorded by drawing a map showing exactly where the fingertips landed on each attempt.
A line should be drawn to the appropriate triangle to indicate where the subject touched their nose.



Hands on Practice

SESSION TEN: POLY DRUGS

The practice of taking more than one drug to achieve desirable effects is very common.

Drugs taken in combination will produce one of four combining effects.

These combination effects are referred to as:

- Null Effect
- Overlapping Effect
- Additive Effect
- Antagonistic Effect.

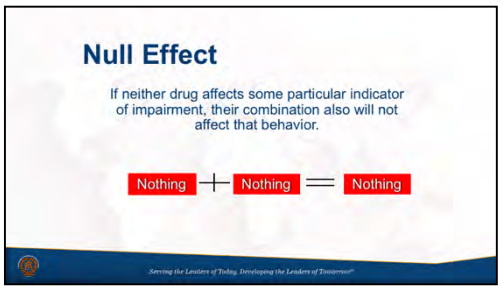
Each of these effects will be covered in this training session. They are not covered to assist the participants in being able to determine the exact drug categories of combination, but to provide a basic understanding of what is occurring when a subject is displaying conflicting signs, symptoms and indicators of impairment.

Common Drug Combinations

There are literally hundreds of drug combinations. Some have been around for many years and they continue to evolve in the drug culture. However, some of the more common combinations include:

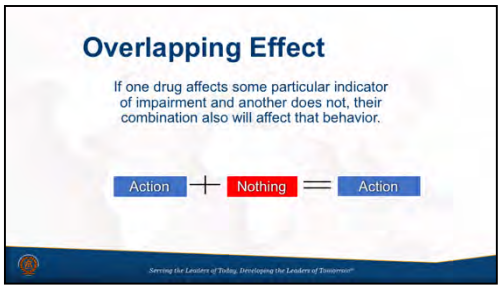
- Cocaine and Marijuana
- Cocaine and Heroin *(street name Speedball)*
- PCP and Marijuana *(street name Sherm)*
- Marijuana and Alprazolam (Xanax) *(street name Bars)*
- Heroin and Marijuana *(street name A-Bomb)*
- Marijuana and Crack Cocaine *(street name Bazooka)*
- Crack Cocaine and Heroin *(street name Chasing the Dragon)*

Specific Effects

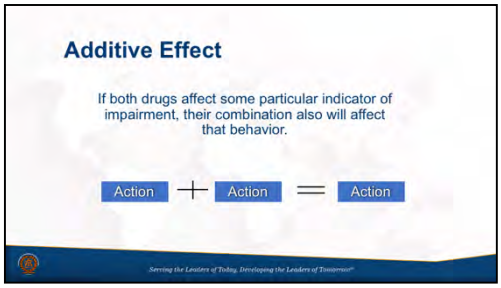


- Null Effect: This is when neither drug category has an effect on the body function.
    - Example: Neither CNS Stimulants nor Narcotic Analgesics cause HGN. Therefore, HGN would not be expected to be seen with these drug categories in combination

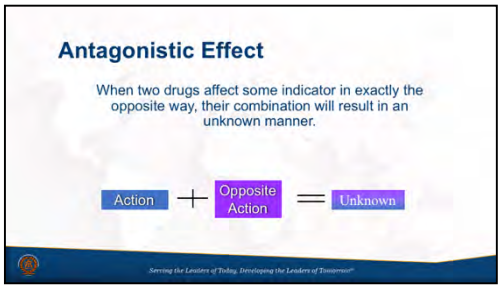
- Overlapping Effect: When one drug category affects the body function, the other does not.
    - Example: CNS Depressants cause HGN, CNS Stimulants do not. HGN would be expected to be seen with this drug category combination



- Additive Effect: When one drug category affects the body function, plus the same affect by another drug category, reinforces the affect.
    - Example: Both Hallucinogens and CNS Stimulants dilate the pupils. Therefore, dilated pupils would be expected with this drug category combination



- Antagonistic Effect: When one drug category affects the body function versus the opposite affect by another drug, outcome can not be predicted.
    - Example: Cannabis dilates the pupils. Narcotic Analgesics constrict the pupils. What is observed cannot be predicted.



POLYDRUG COMBINATIONS

Null Effect ***No Effect + No Effect = No Effect***

	CNS DEPRESSANT	CANNABIS
HGN	Present	None
VGN	Present	None
LOC	Present	Present
PUPIL	Normal	Dilated (6)
RCT/LT	Slow	Normal
PULSE	Down (2)	Up
B/P	Down	Up
TEMP	Normal	Normal

The **Null Effect** would only apply to one symptom: **Body Temperature**. Since neither drug category has any effect on body temperature, the combination of the two categories will have no effect on body temperature.

Overlapping Effect ***Effect + No Effect = Effect***

	DISSOCIATIVE ANESTHETIC	CANNABIS
HGN	Present	None
VGN	Present	None
LOC	Present	Present
PUPIL	Normal	Dilated (6)
RCT/LT	Normal	Normal
PULSE	Up	Up
B/P	Up	Up
TEMP	Up	Normal

The **Overlapping Effect** would influence several symptom categories in this combination. **Horizontal and Vertical Gaze Nystagmus** are both present in Dissociative Anesthetics but not Cannabis. Because *Effect + No Effect = Effect,* both symptoms should be present during evaluation. Also, Dissociative Anesthetics have no effect on **Pupil Size**, but Cannabis will dilate. Because of the overlapping effect, pupils should be dilated. Finally, Dissociative Anesthetics elevate the **Body Temperature** while Cannabis has no effect on body temperature. During the evaluation, the suspect should have an elevated body temperature.

Additive Effect ***Effect + Effect = Reinforced Effect***

	CNS STIMULANT	CANNABIS
HGN	None	None
VGN	None	None
LOC	None	Present
PUPIL	Dilated	Dilated (6)
RCT/LT	Slow	Normal
PULSE	Up	Up
B/P	Up	Up
TEMP	Up	Normal

The **Additive Effect** will reinforce several symptoms indicative to both categories. First, **Pupil Size**. The symptom of dilated pupils should be reinforced and very apparent since both categories have a tendency to dilate pupils. Secondly, **Pulse Rate and Blood Pressure** are elevated in both categories. Again, this should reinforce an elevated pulse and blood pressure during the evaluation. **Effect + Effect = Reinforced Effect**.

Antagonistic Effect ***Effect + Opposite Effect = Any Effect***

	CNS STIMULANT	NARCOTIC ANALGESIC
HGN	None	None
VN	None	None
LOC	None	None
PUPIL	Dilated	Constricted
RCT/LT	Slow	Little/None Visible
PULSE	Up	Down
B/P	Up	Down
TEMP	Up	Down

The **Antagonistic Effect** will appear in several observable symptoms of this combination. First will be in **Pupil Size**. Since CNS Stimulants dilate and Narcotic Analgesics constrict, we may see anything from either symptom to possibly a normal pupil. However, if the stimulant is wearing off and the narcotic is still active or predominant, then we would most likely see a constricted pupil. The opposite would be true if the stimulant was the dominant drug, then we would notice a dilated pupil.

Also, the following symptoms are antagonistic: **Pulse, Blood Pressure, and Body Temperature**. As with the pupil size, we could see anything from elevated to lowered, to normal, again depending on the strength or predominance of each drug in the body. It is important to remember that we simply cannot predict the outcome of antagonistic effects.

DRUG INTERACTIONS IN COMBINATION

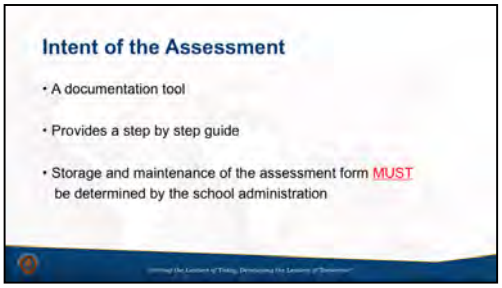
DISSOCIATIVE ANESTHETIC and HALLUCINOGEN	
HGN	Overlapping
VGN	Overlapping
LOC	Overlapping
PUPIL SIZE	Overlapping
RCT TO LIGHT	Null (may be overlapping (3))
PULSE	Additive
B/P	Additive
TEMP	Additive

CNS DEPRESSANT and CANNABIS	
HGN	Overlapping
VGN	Overlapping
LOC	Additive
PUPIL SIZE	Overlapping (may be additive (1), (6))
RCT TO LIGHT	Overlapping
PULSE	Antagonistic (may be additive (2))
B/P	Antagonistic
TEMP	Null

CNS DEPRESSANT and CNS STIMULANT	
HGN	Overlapping
VGN	Overlapping
LOC	Overlapping
PUPIL SIZE	Overlapping (may be additive (1))
Rx TO LIGHT	Additive
PULSE	Antagonistic (may be additive (2))
B/P	Antagonistic
TEMP	Overlapping

SESSION ELEVEN: ASSESSMENT PROCESS AND PROCEDURES

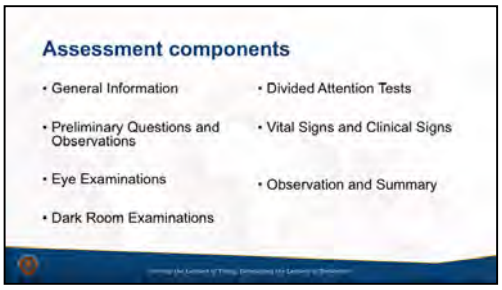
To assist in documenting the observations during the DITEP drug assessment, two possible assessment forms are provided. These forms complement the initial Referral Form introduced on Day One.



The Assessment forms provide a step-by-step documentation tool to assist the examiners in the DITEP drug assessment process.

School administration should determine what process will be used to store and maintain the completed assessment forms.

The assessment forms include the following areas:



- Initial Contact and Interview
    - If alcohol is suspected and the school or school district has an alcohol testing device and process in place, a screening test is recommended
    - The examiner should note their first impressions and the general appearance of the subject in question.
    - The examiner should also record responses to the initial questions asked of the subject
- Vital Signs
    - If the subject's vital signs are taken, they should be recorded in the assessment form
    - As a reminder, if any of the vital signs are abnormal to the point of medical concerns, medical personnel should be consulted
- Eye Examinations

  The assessment eye examinations should be recorded and should include the following tests:

    - Equal tracking
    - Equal pupil sizes

- Resting nystagmus
- Horizontal gaze nystagmus (HGN)
- Vertical nystagmus (VGN)
- Lack of convergence (LOC)

- Divided Attention Tests

  The divided attention tests administered to the subject should be recorded and should include the following tests:

  - Modified Romberg Balance
  - Walk and Turn
  - One Leg Stand
  - Finger to Nose

- Pupil Size/Dark Room and Ingestion Examination

  The pupil size, dark room examinations and signs of ingestion observations should be recorded on the assessment form.

- Muscle Tone

  Any checks of the subject's muscle tone should be recorded on the assessment form.

- Injection Marks

  If any injection marks are observed during the assessment of the subject, those should be recorded on the assessment form. Care should be used in inspecting injection marks for health purposes. Protective gloves are recommended.

Assessment Conclusions

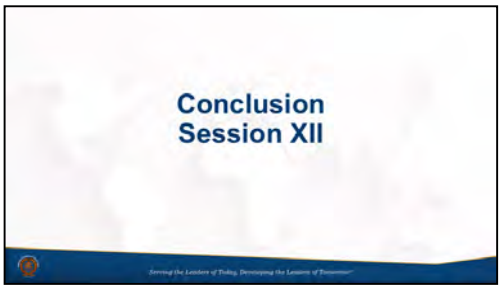
The conclusions of the assessment should include the following:

- Interview questions, statements, and other observations of the subject
- Examiner's summary

- Additional chemical testing. This could include a breath test, if alcohol is suspected, or could include additional drug testing following school policy

- Team Consultation and Recommendations

  If an assessment team, or other relevant personnel, are involved or consulted, their recommendations should also be included in the assessment

- Conference with Parent(s)

  If the assessment includes a conference with the parents or guardians, that information should be included in the assessment along with any relevant information obtained during that contact.