Preliminary Training for Drug Evaluation and Classification Program

“The Pre-School”

Instructor’s Guide

DRE Pre-School Instructor Guide – Table of Contents

R5/13 Curriculum

Acknowledgements

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Preface

The Drug Recognition Expert course is a series of three training phases that, collectively, prepare police officers and other qualified persons to serve as drug recognition experts (DRE). Throughout this manual, the terms “drug recognition expert” and “DRE” are used to designate an individual who is specially trained and has continued training to conduct examinations of drug-impaired drivers. This training, developed as part of the Drug Evaluation and Classification Program (DECP) under the auspices and direction of the International Association of Chiefs of Police (IACP) and the National Highway Traffic Safety Administration (NHTSA) has experienced remarkable success since its inception in the 1980s.

As in any educational training program, an instruction manual is considered a “living document” that is subject to updates and changes based on advances in technology and science. A thorough review is made of information by the DECP Technical Advisory Panel (TAP) of the Highway Safety Committee of the IACP with contributions from many sources in health care science, toxicology, jurisprudence, and law enforcement. Based on this information, any appropriate revisions and modifications in background theory, facts, examination and decision making methods are made to improve the quality of the instruction as well as the standardization of guidelines for the implementation of the Drug Recognition Expert Training Curriculum. The reorganized manuals are then prepared and disseminated, both domestically and internationally, to the DECP state coordinators.

Changes will take effect 90 days after approval by the TAP, unless otherwise specified or when so designated by a state coordinator.

PRELIMINARY TRAINING

FOR DRUG EVALUATION AND CLASSIFICATION

ADMINISTRATOR'S GUIDE

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A. Purpose of This Document

This Administrator's Guide provides an introduction to and an overview of the two-day course entitled "Preliminary Training for Drug Evaluation and Classification Program". This course is the first in a series of three training programs that, collectively, prepare police officers and other qualified persons to serve as Drug Recognition Experts (DREs). In some law enforcement agencies, these officers are known as Drug Recognition Technicians. The International Association of Chiefs of Police (IACP) have adopted "DRE" as the generic title for the persons who carry out this program.

A person who satisfactorily completes this Preliminary Training program is eligible for advancement to the second stage of DRE training, i.e., the seven-day classroom program in Drug Evaluation and Classification. The seven-day course commonly is called the "DRE School", to distinguish it from this two-day preliminary course (known as the "Pre-School"). Upon successful completion of the seven-day DRE School, the officer graduates to the final, or “Certification Phase”, of his or her training. The Certification Phase is conducted on-the-job: under the supervision of duly-authorized instructors, the DRE trainee conducts evaluations of persons suspected of drug impairment. The instructors evaluate the trainee's skill in conducting drug influence evaluations, and also evaluate his or her judgment in forming opinions as to the category or combination of categories of drugs causing the impairment evident in the subjects. And, the trainee's opinions are compared with the results of toxicological examinations, when they are available.

This Administrator's Guide is intended to facilitate planning and implementation of the Preliminary Training Program. The Guide overviews the two-day course of instruction.

B. Overview of the Course

1. For Whom Is The Training Intended?

   This course is designed for people who have been selected to serve as DREs. No one is permitted to enroll in the Pre-School unless he or she intends to proceed through the subsequent stages of training, and ultimately achieve certification as a DRE. The emphasis here should be kept on the concept of actual service as DREs. The skills that a DRE applies can be kept sharp only if they are frequently used.

   There is no point in offering this training to someone who will not routinely and regularly evaluate drug-impaired subjects, since that person would quickly lose whatever competence he or she gained through the training. The DRE's job is not like riding a bicycle: one can and will forget how to do it properly unless he or she does it frequently. Agencies interested in this training should take special note that it is not desirable to send full-time instructors to this course, with the intent of having those instructors come home and teach others. Unless provisions are made to have those instructors actually work as DREs, their ability to serve competently as teachers of other DREs will vanish rapidly. It is far preferable to select trainees who will subsequently serve primarily as DRE practitioners, and who can be called upon part-time to serve as trainers.

Anyone selected as a DRE trainee must be fully competent with the Standardized Field Sobriety Tests (SFSTs), i.e., Horizontal Gaze Nystagmus, Walk and Turn, and One Leg Stand. No one can progress to the seven-day DRE School until he or she demonstrates proficiency with the three SFSTs.

2. What Is The Goal Of This Training?

   The goal of this two-day Pre-School is succinct:

   To prepare the student to participate successfully in his or her formal classroom training in the drug recognition process, i.e., the seven-day DRE School.

3. What Will The Students Get Out Of The Training?

   As a result of successfully completing this Pre-School, the students will be better able to:

   (1) Define the term "drug" and name the seven categories.

   (2) Identify the twelve major components of the drug influence evaluation process.

   (3) Administer and interpret the psychophysical tests used in the process.

   (4) Conduct the eye examinations used in the process.

   (5) Check the vital signs that are relevant to the process.

   (6) List the major signs and symptoms associated with each drug category.

   (7) Describe the history and physiology of alcohol as a drug.

   These are a subset of the competencies expected of DRE trainees by the completion of the seven-day DRE School; the Pre-School gives them a "head start" toward achieving those skills.

4. What Subject Matter Does The Course Cover?

   - A traffic safety-oriented definition of what constitutes a "drug" (i.e., any substance that, when taken into the human body can impair the ability of the person to operate a vehicle safely).

   - Enumeration of seven distinct categories of drugs; the drug influence evaluation process allows the DRE to identify which category or combination of categories is causing the impairment evident in a subject

   - Demonstrations of and practice with four divided attention psychophysical tests that are used to assess impairment during a drug evaluation.

   - Demonstration of and practice with the three eye examinations that provide

cues of the possible presence of various drug categories.

- Demonstrations of and practice with checks of certain vital signs that point to the possible presence of various drug categories.

- A review of the major observable signs that distinguish the categories from each other.

5. What Activities Take Place During The Training?

   Although a certain minimal amount of formal lectures are required, the course consists primarily of hands-on practice. Students repeatedly drill in the divided attention tests, the eye examinations and in performing checks of the vital signs. A controlled drinking exercise (involving volunteers who are not members of the class) provides an opportunity to practice assessing impairment on the divided attention tests.

6. How Long Does The Training Take?

   The training encompasses approximately 13 and ½ hours of actual instruction. With breaks, this occupies two full training days.

C. Overview of the Curriculum Package

1. Instructor's Lesson Plans

   The Instructor's Lesson Plans are a complete and detailed outline of what is to be taught in the Pre-School (i.e. the subject matter) and also of how it is to be taught (i.e., the instructional methods). The lesson plans are organized into modules. Each module corresponds to one of the course's ten sessions.

   Each module consists of a cover page; an outline page; the lesson plans themselves; and copies of any visuals referenced in the lesson plans.

   The cover page presents the session's title and the total time required to conduct the session.

   The outline page presents the training objectives for the session, i.e. exactly what the student will be able to do as a result of successfully completing the session. The outline page also lists the major content segments of the session, as well as the principal instructional activities that take place during the session.

   The Instructor's Lesson Plans serve, first, to prepare the instructor to teach the course. He or she should review the entire set of plans, for all ten sessions, to become familiar with the content and learning activities and develop a clear understanding of how the course fits together. The instructor is expected to become thoroughly familiar with each lesson plan segment that he or she is assigned to teach; to assemble all "props" and materials needed to deliver the lesson; and, to augment the instructional notes, as necessary and appropriate, to

ensure that his or her own style and experience are applied to teaching the lesson.

Subsequently, the Instructor's Lesson Plans serve as an in-class reference document for the instructor, to help him or her maintain the sequence and pace of training.

It is worth emphasizing that the lesson plans are not speeches. Although the outlines of content and instructional notes are fairly detailed, those outlines are not to be read verbatim to the students. This training is intended to be a dynamic and highly interactive learning experience. It must not be permitted to degenerate into a series of mere lectures.

2. Visual Aids

Four kinds of audio-visual aids are employed in the Pre-School:

- wall-charts
- Dry erase board/flip-chart presentations
- visuals, i.e. PowerPoint slides
- video/DVD

The wall-charts are permanently displayed items. They consist of brief captions, intended to depict major themes and segments of the course. The wall-charts should be positioned high on the far left and right sides of the classroom's front wall where they will be visible without occupying the center of attention.

The dry erase board/flip-chart presentations are outlined in the lesson plans, and are self-explanatory.

The visuals are simple graphic and/or narrative PowerPoint displays that emphasize key points and support the instructor's presentations.

The video/DVD is a portrayal of major components of the drug influence evaluation. This same video is used in the 7-day DRE School.

D. General Administrative Requirements

1. Facility Requirements

The Pre-School requires a classroom with ample table/desk space for each student; an audio visual projector and screen; a video/DVD player and one or more monitors easily visible to all students; and, a dry-erase board and/or flip-chart. The classroom must have sufficient open space to permit instructors to give full and unimpeded demonstrations of the divided attention tests; the eye examinations; and the checks of vital signs. And, the arrangement of the classroom must permit the students to have full view of these demonstrations.

Adequate space must be available to permit the students to practice the various tests and checks that the instructors demonstrate. The practice space may be a room separate from the classroom; a gymnasium often serves quite well for the practice segments.

The Alcohol Workshop also requires a separate room where the volunteers can do their drinking. Breath testing instruments and operators must be available to monitor the volunteers' BACs.

2. Instructor Qualifications

All faculty for the Pre-School must be duly certified DREs. The principal instructor, at least, must have completed DRE Instructor Training.

3. Class Size Considerations

This course is a highly participative learning experience. A significant amount of hands-on practice requiring close supervision and coaching takes place. Because of the nature of this training, the recommended maximum class size is 25 students. A more nearly ideal range would be 15 to 20.

4. Requirements For The Controlled Drinking Practice Sessions

Both the DRE Pre-School and DRE seven-day course require an alcohol workshop and the use of volunteer drinkers. The participation of volunteers who will consume carefully measured quantities of alcohol and submit to examinations administered by the students. Without these volunteers, students have no opportunity to practice administering the tests under reasonably realistic circumstances, or to practice interpreting test results.

Drinking volunteers, then, are an essential resource for this training. But they can be a difficult, even unpleasant, resource with which to work. Careful steps must be taken to insure that the volunteers contribute to a worthwhile learning experience, and suffer no harm themselves nor cause any harm to others.
The following criteria define who can be considered as drinking volunteers.

- They cannot be members of the class.
- They must be at least 21 years old.
- They cannot have any history of alcoholism.
- They cannot be known to suffer from any medical condition that may be exacerbated by alcohol (such as hypertension or diabetes).
- They cannot be taking any medication (prescription or otherwise) that might interact with alcohol.
- They must be in good physical health, and have no impairments of vision or

limbs that might affect their performance of the Standardized Field Sobriety Tests.

- They must be under 60 years of age, and less than 50 pounds overweight (conditions for which the standardized divided attention tests have not been validated).

Every volunteer drinker participating in the alcohol workshop must read and sign the "Statement of Informed Consent" before receiving any alcohol. The Course Administrator or a designated DRE Instructor will obtain the individual signatures from each of the volunteer drinkers prior to commencing the alcohol workshop.

Transportation must be provided for the volunteers to and from the training session. Under no circumstances may a volunteer be permitted to drive from the training session, regardless of his or her blood alcohol concentration at the time of departure. Volunteers should be released only into the custody of responsible, sober persons.

The practice sessions require a minimum of one drinking volunteer for every five students. A more desirable ratio is one volunteer for every three students. Thus, for a class of 25 students, at least 5 volunteers, and preferably 8 or 9 must participate in each session.

The effectiveness of the volunteers, as training resources, very much depends on their blood alcohol concentrations. If a volunteer's BAC is too low (i.e., below 0.06), he or she generally will provide a poor simulation of a typical DWI subject If the BAC is too high (i.e., above 0.15), the volunteer's state of inebriation usually will be evident without standardized sobriety testing, and the learning experience will not contribute as effectively as possible to sharpening the students' detection skills.

Ideally, approximately half of the volunteers at any session should achieve peak BACs between 0.12 and 0.14 and the other half between 0.06 and 0.08. But this is very difficult to control. It is always preferable to err, if necessary, on the low side: it is better to fail to get volunteers as "high" as desired, rather than to get them too "high".

Volunteers should be instructed to refrain from eating two hours prior to their arrival at the training facility. Food in their stomachs may dramatically affect the absorption of alcohol into their bloodstreams, and significantly impede your ability to control the peak BACs they achieve.

Volunteers should be brought to the training facility at least two hours before the practice session is scheduled to begin. Each volunteer should be breath tested immediately upon arrival to verify that his or her BAC is zero.

The table on the next page indicates the ounces of 80-proof distilled alcoholic beverage that volunteers should consume, in relation to their weight and the "target" peak BAC, during a three (3) hour interval to reach a target BAC of 0.12-0.14 percent.

GUIDELINES FOR ACHIEVING TARGET BAC'S
DURING A THREE (3) HOUR INTERVAL

Ounces of 80-Proof Alcoholic Beverage to Reach a B.A.C. of 0.12.

Weight (Pounds)	MEN	WOMEN
110	5	4
120	6	5
130	6	5
140	7	5
150	7	6
160	8	6
170	8	7
180	9	7
190	9	7
200	10	8
210	10	8
220	10	8
230	11	9
240	11	9
250	12	10

It is recommended that volunteers consume half of the total allocated amount of alcoholic beverage during the first hour following their arrival at the testing facility. They should refrain from drinking or smoking prior to any breath test.

NOTE: A volunteer may cease drinking at any time.

NOTE: No weapons should be present in the vicinity of any drinking volunteer.

Volunteers must be kept under constant supervision from the time of their arrival at the training facility. At least one instructor's aide must be present for every four volunteers. The aids must monitor the volunteers, serve their drinks, make sure that they comply with the schedule, and in general keep them under close observation.

NOTE: For a more complete description of Alcohol Workshop procedures, refer to the latest edition of the Student-Instructor's Manual for the DRE Instructor Training School, and specifically Unit Nine, "Planning and Managing an Alcohol Workshop".

International Association of Chiefs of Police
Drug Evaluation and Classification Program
Drug Influence Evaluation Checklist

_____ 1. Breath alcohol test

_____ 2. Interview of arresting officer

_____ 3. Preliminary examination and first pulse
(Note: Gloves must be worn from this point on.)

_____ 4. Eye examinations

_____ 5. Divided attention tests:

_____ Romberg balance
_____ Walk and turn
_____ One leg stand
_____ Finger to nose

_____ 6. Vital signs and second pulse

_____ 7. Dark room examinations and ingestion examination

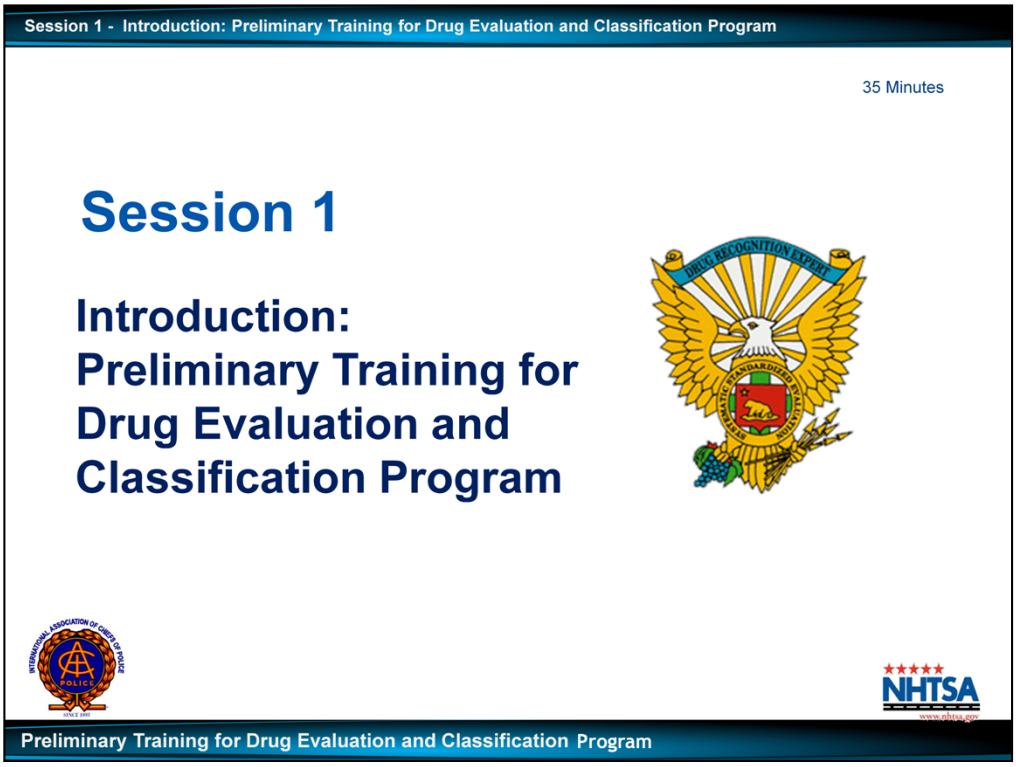
_____ 8. Check for muscle tone

_____ 9. Check for injection sites and third pulse

_____ 10. Interrogation, statements, and other observations

_____ 11. Opinion of evaluator

_____ 12. Toxicological examination



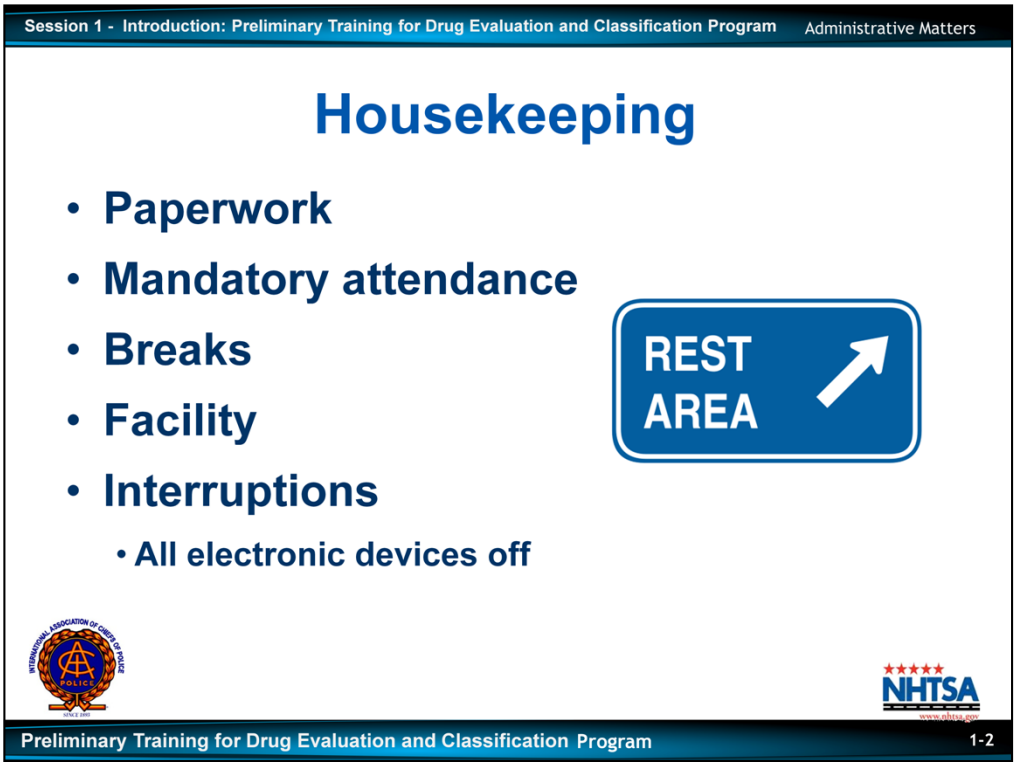
Ensure instructors' names and participants' names are clearly written on tent cards.

Welcoming Remarks

Welcome to the first phase of DRE training.

Faculty Introductions

Lead off instructors introduce the instructor faculty. State names, agency affiliations, and experience. Ask each instructor to stand as they are introduced.



Paperwork

• ***Completion of registration forms, travel vouchers, etc.***

Attendance

Attendance is mandatory at all sessions of this school.

• ***If a Participant misses any portion of this school, he or she must make up the deficiency via after hours tutoring before beginning certification training.***

Breaks

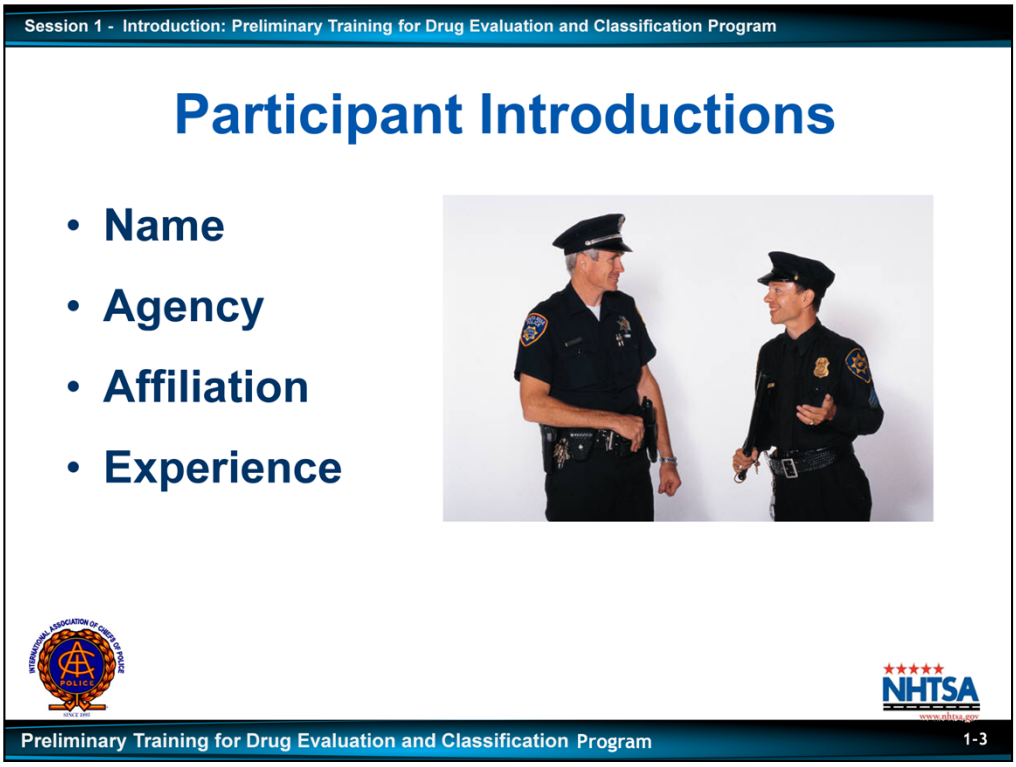
• ***Time allotted for breaks and reconvening***

Facility

• ***Locations of restrooms, lunchrooms, etc.***

Interruptions

• ***No texting or email monitoring. Turn off all electronic devices.***



Whenever possible, the instructor should consider using creative and innovative icebreaking techniques.

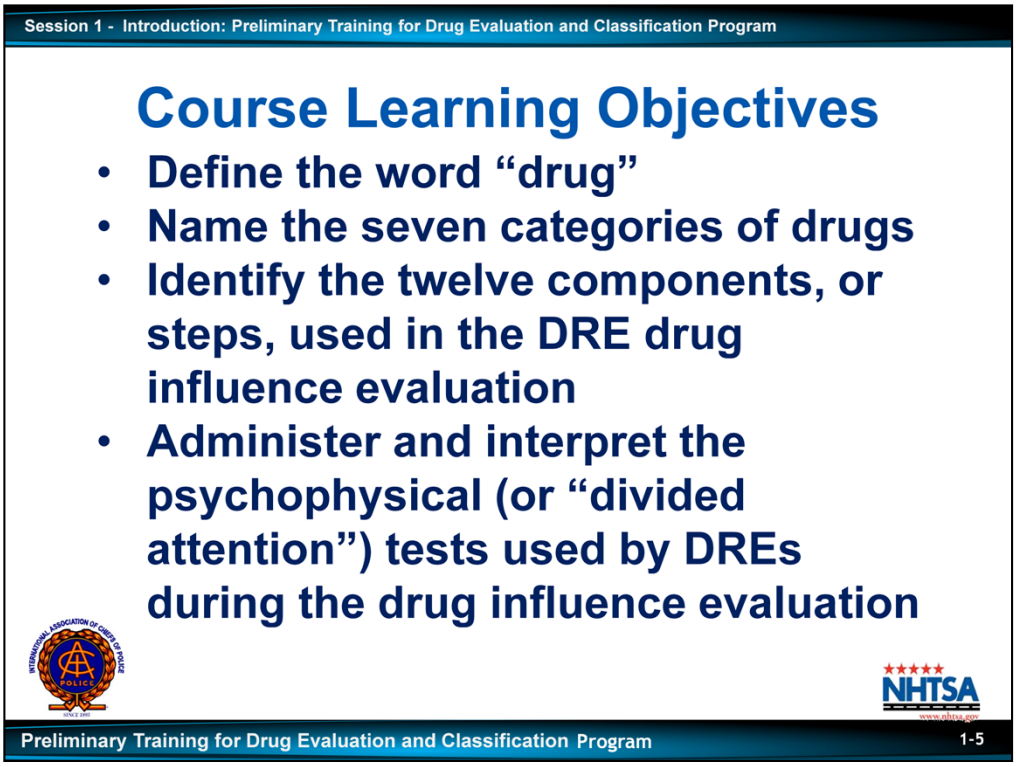
At a minimum, instruct each Participant to stand and give their name, agency affiliation and experience.

Preliminary Training Goal

To prepare the participants to succeed in the 7-Day Drug Recognition Expert school.

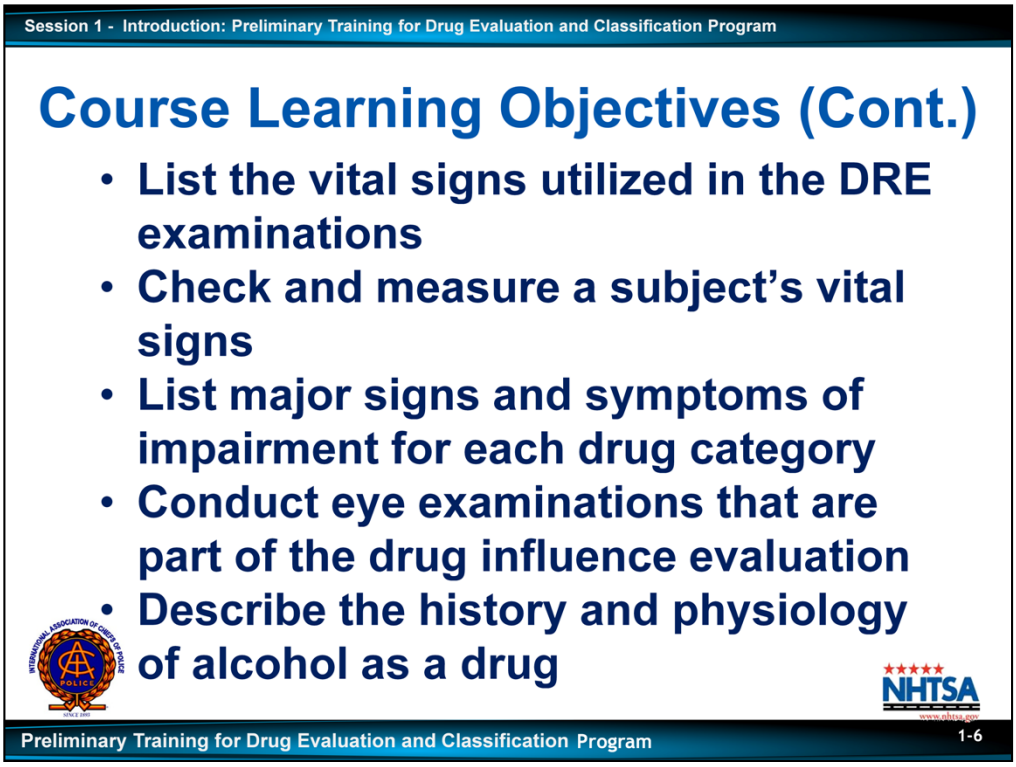
This two-day Preliminary School won't make you DRE's, but it will make it easier for you to pass the 7-Day DRE School and successfully complete your certification training.

Inform the participants of when and where their formal, seven-day DRE School will take place.



Learning Objectives of the Preliminary Training

- Define "Drug" and name the seven categories.
- Name the seven categories of drugs.
- Identify the twelve components or steps in the DRE drug influence examination.
- Administer and interpret the Psychophysical Tests used by DRE's during the drug influence evaluation.



- Check and measure a subject's vital signs.
- List the major signs and symptoms of each drug category.
- Conduct the eye examinations that are part of the drug influence evaluation.
- Describe the history and physiology of alcohol as a drug.

Solicit participants' questions about the goal and objectives.

Key Points of Emphasis

This two-day school is only the first of three stages in your training as DREs.

Next will come the seven-day formal DRE school.

After that will come several weeks of supervised on-the-job training known as the "Certification Phase."

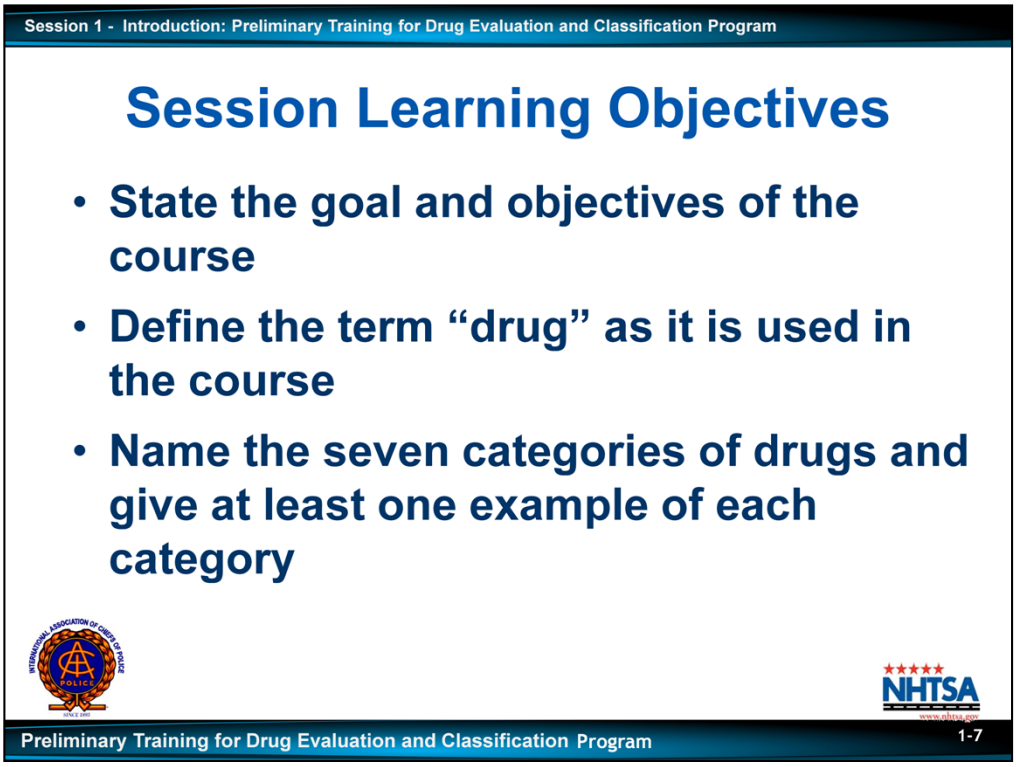
Solicit participants' questions about the three stages of training.

Preview of the remainder of the Pre-School

Briefly outline the upcoming sessions of the school. Refer to the wall-charts.

Certification Progress Logs

Instruct participants to open their manuals and remove the Certification Progress Log. Have participants fill out the first line of the log, then collect it.



Briefly review the objectives, content and activities of this session.

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

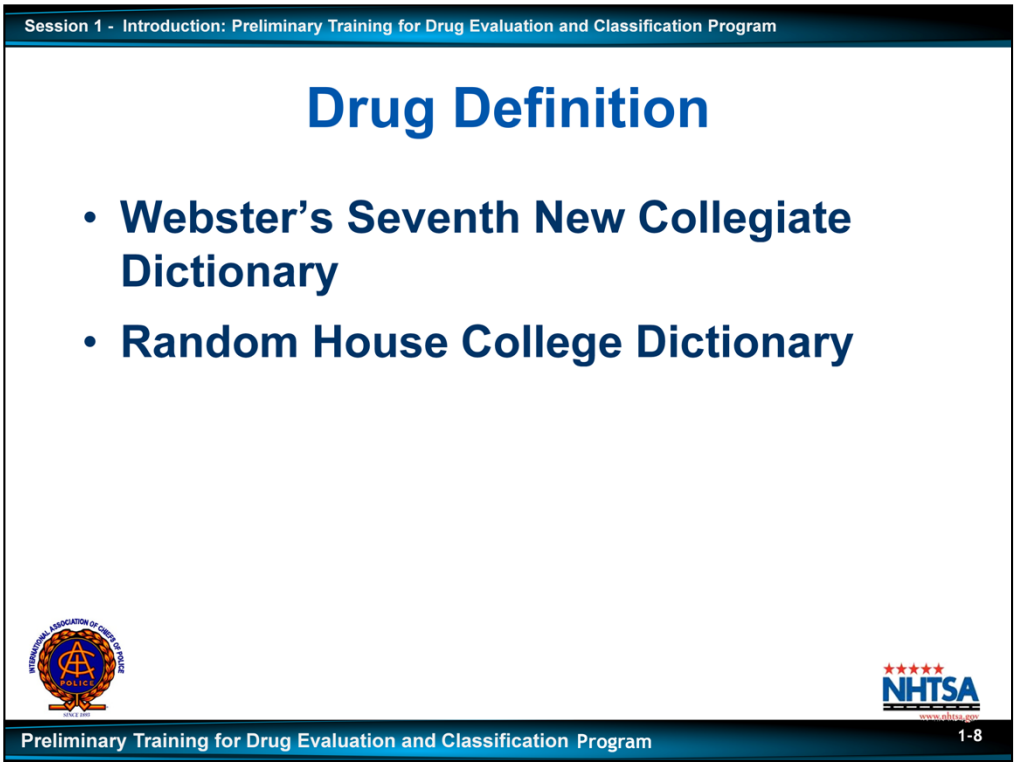
- State the goal and objectives of the course.
- Define the term "drug" as it is used in the course.
- Name the seven categories of drugs and give at least one example of each category.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Welcoming Remarks and Objectives	Instructor-Led Presentations
B. Definition and Categories of Drugs	

B. Definition and Categories of Drugs

Pose this question and solicit responses from several participants.

What do we mean by the word "drug"?



Alternative Definitions, drawn from Several Sources

"a substance used as a medicine or in making medicines."

Source: Webster's Seventh New Collegiate Dictionary, 1971 edition.

Ask participants: "Would you agree that all drugs are medicines or ingredients of medicines?"

Ask participants to name some substances they consider to be "drugs" that have no medicinal value.

"a narcotic substance or preparation."

Source: Webster's. Ask participants if they agree that all drugs are narcotics.

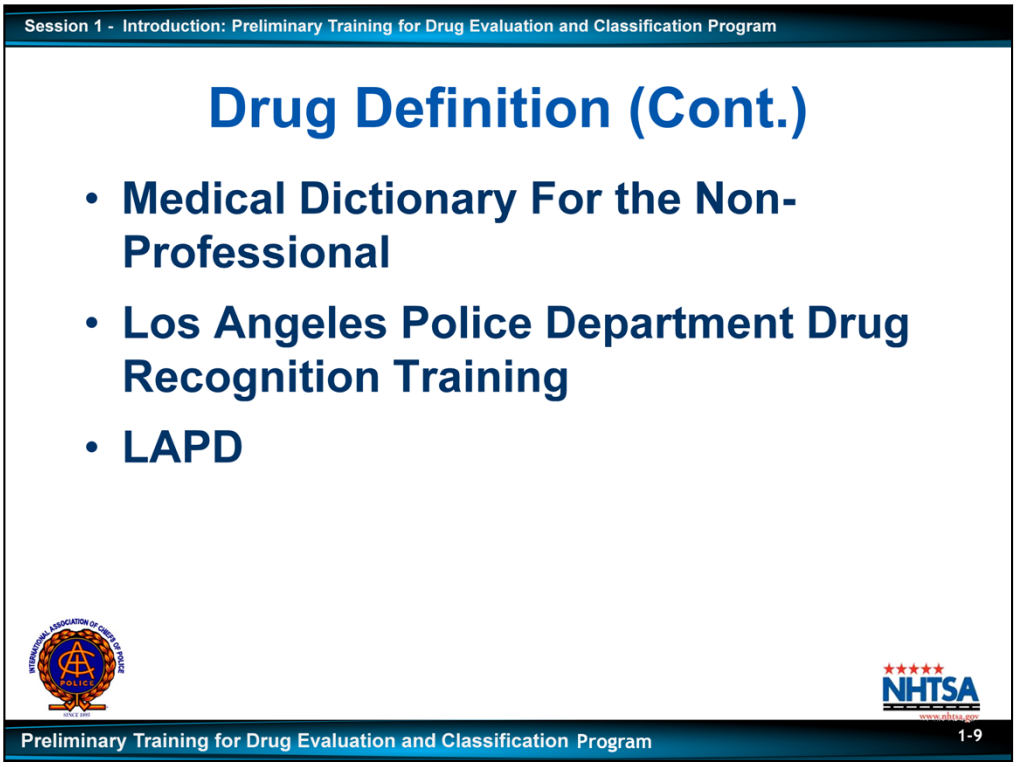
"a chemical substance administered to a person or animal to prevent or cure disease or otherwise to enhance physical or mental welfare."

Source: Random House College Dictionary, 1982 edition.

Point out that this definition seems to exclude any drug that is harmful or does not enhance welfare.

"a habit-forming medicinal substance, especially a narcotic."

Source: Random House.



Ask participants if they agree that all drugs are habit- forming.

Ask if, from an enforcement perspective, they can think of any habit-forming substances they would not ordinarily be considered to be a drug.

"a substance taken by mouth, injected or applied locally to treat a disorder (i.e., to ease pain)."

"a chemical substance introduced into the body to cause pleasure or a sense of changed awareness, as in the non-medical use of Lysergic Acid Diethylamide (LSD).

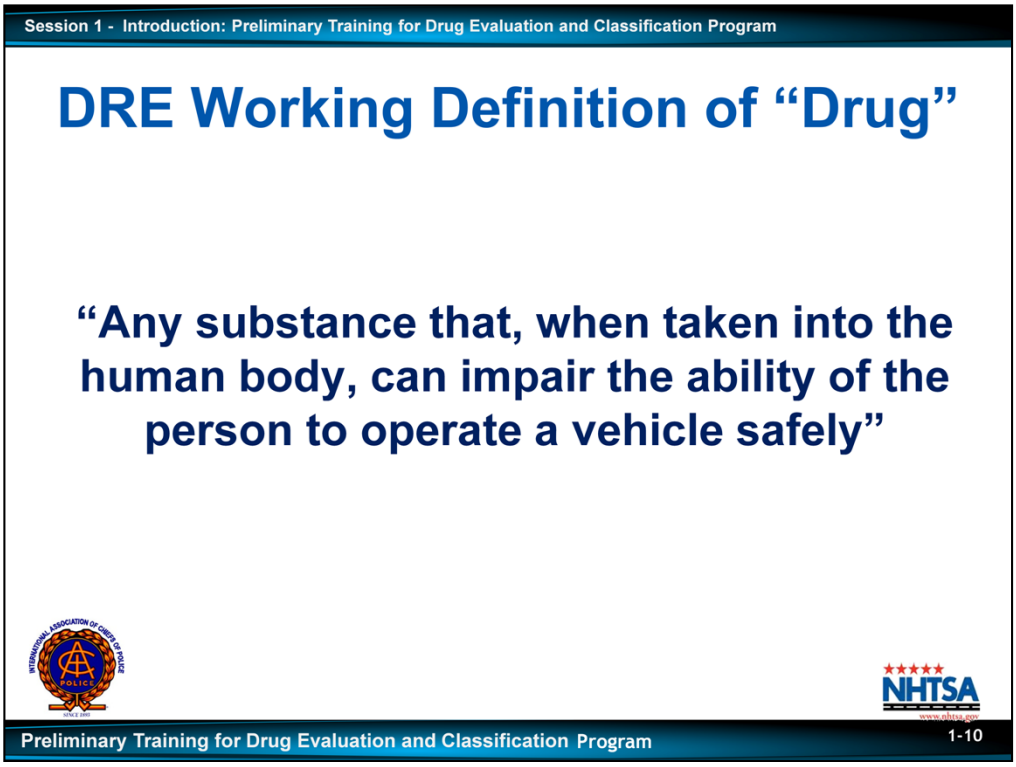
Source: Medical Dictionary For the Non-Professional, Barrows Educational Series, Inc., Woodbury, NY. 1984.

"any substance, natural or artificial that by chemical nature alters the structure or function of a living organism."

*Source: Los Angeles Police Department Drug Recognition Training, May 198*6.

"any substance that, in small amounts, produces changes in the body, mind or both."

Source: LAPD



A Simple, Enforcement-Oriented Definition of Drugs

"any substance that, when taken into the human body, can impair the ability of the person to operate a vehicle safely."

Working definition derived from the 1985 California Vehicle Code.

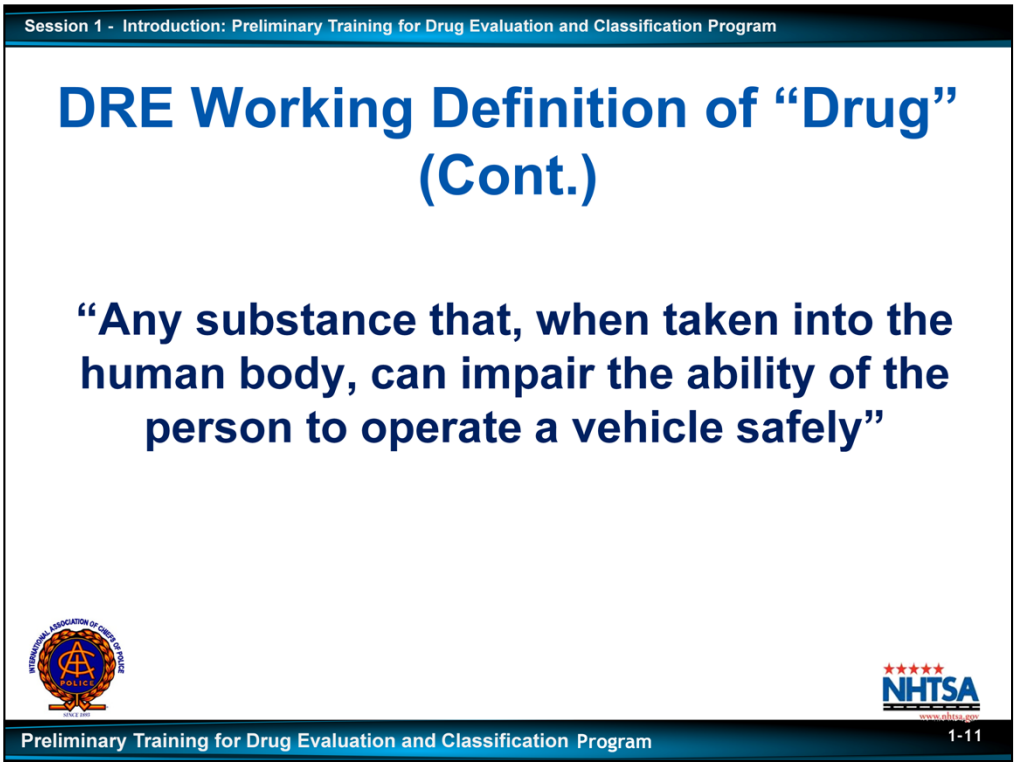
Point out that this definition excludes many substances that ordinarily would be considered "drugs" by physicians, chemists, etc.

Emphasize that, as traffic law enforcement officers, the participants' concern has to remain focused on substances that impair driving.

Within this simple, enforcement-oriented definition, there are seven categories of drugs.

Each category consists of substances that impair a person's ability to drive.

The categories differ from one another in terms of how they impair driving ability and in terms of the kinds of impairment they cause.



Emphasize that the DEC Program drug categories differ from those of the American Medical Association and the Drug Enforcement Administration because they categorize drugs on the basis of their chemical structures, while we categorize drugs on the basis of the kinds of impairment they produce.

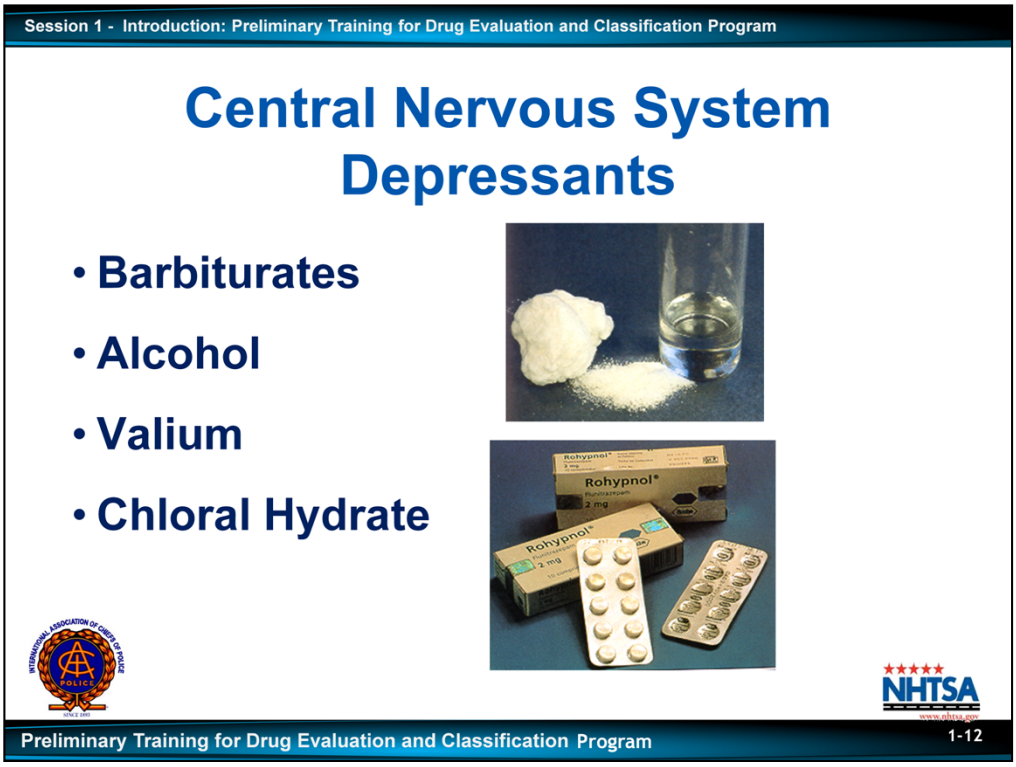
- Because the categories produce different types of impairment, they generate different signs and symptoms.

- With training and practice, you will be able to recognize the different signs of drug influence and determine which category is causing the impairment you observe in a subject.

Ask participants: "What are the seven categories of drugs?" Note: Some participants may not have been trained on the seven categories of drugs. Poll the participants to determine their knowledge of the drug categories. Instructors may need to assist the participants in identifying the categories.

Write the names of the categories on the dry erase board or flip-chart as they are mentioned by the participants.

Since the drug categories may be new to the participants you may need to assist them in correctly identifying each category.

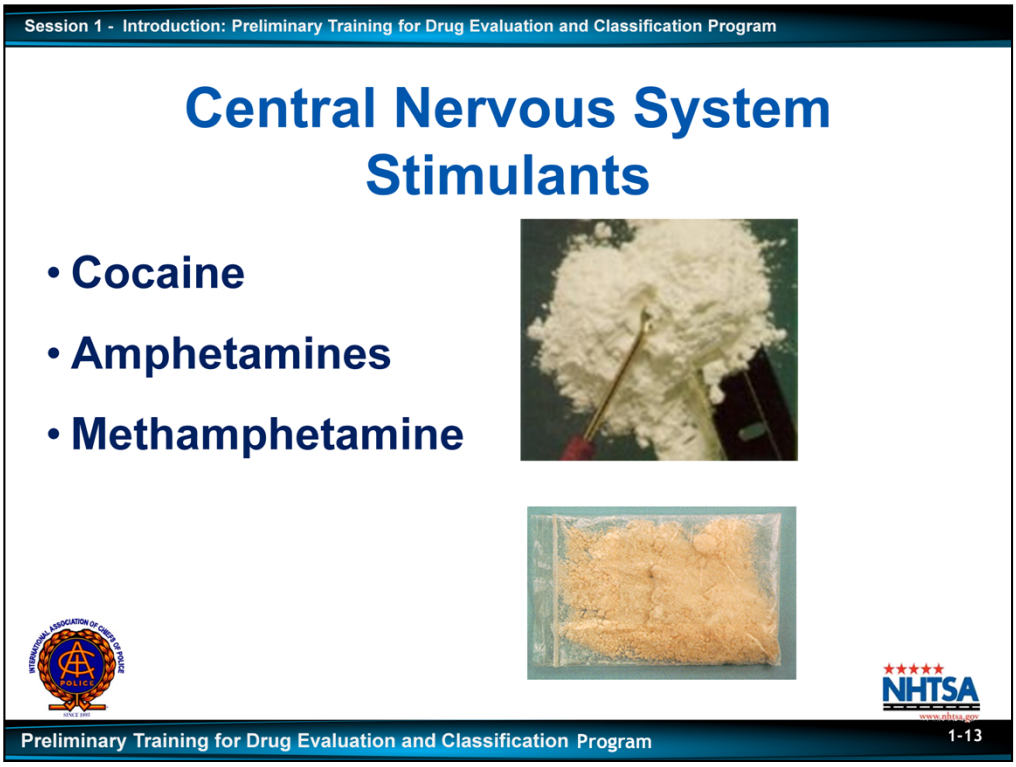


Central Nervous System Depressants
The category of CNS Depressants includes some of the most commonly abused drugs.

Alcohol – the most familiar drug of all – is abused by an estimated 40-50 million Americans.
- Slightly more than half of Americans age 12 or older reported being current drinkers of alcohol in 2010 (51.8% of the population). This translates to an estimated 131 million people. *Source: National Survey on Drug Use and Health (NSDUH, 2010)*
- Depressant drugs consistently rank among the most widely used and abused drugs in the U.S. and Canada. Over the past decade, an estimated 60 million prescriptions were processed for minor tranquilizers in U.S. pharmacies. *Source: Downers: A New Look at Depressant Drugs*

Point out that Chloral Hydrate sometimes is called "Mickey Finn" or "Knockout drops."

Depressants slow down the operation of the central nervous system (i.e., the brain, brain stem and spinal cord).
- Cause the user to react more slowly.
- Cause the user to process information more slowly.
- Relieve anxiety and tension.
- Induce sedation, drowsiness and sleep.
- In high enough doses, CNS depressants will produce general anesthesia, i.e. depress the brain's ability to sense pain. In very high doses, induce coma and death.



Central Nervous System Stimulants

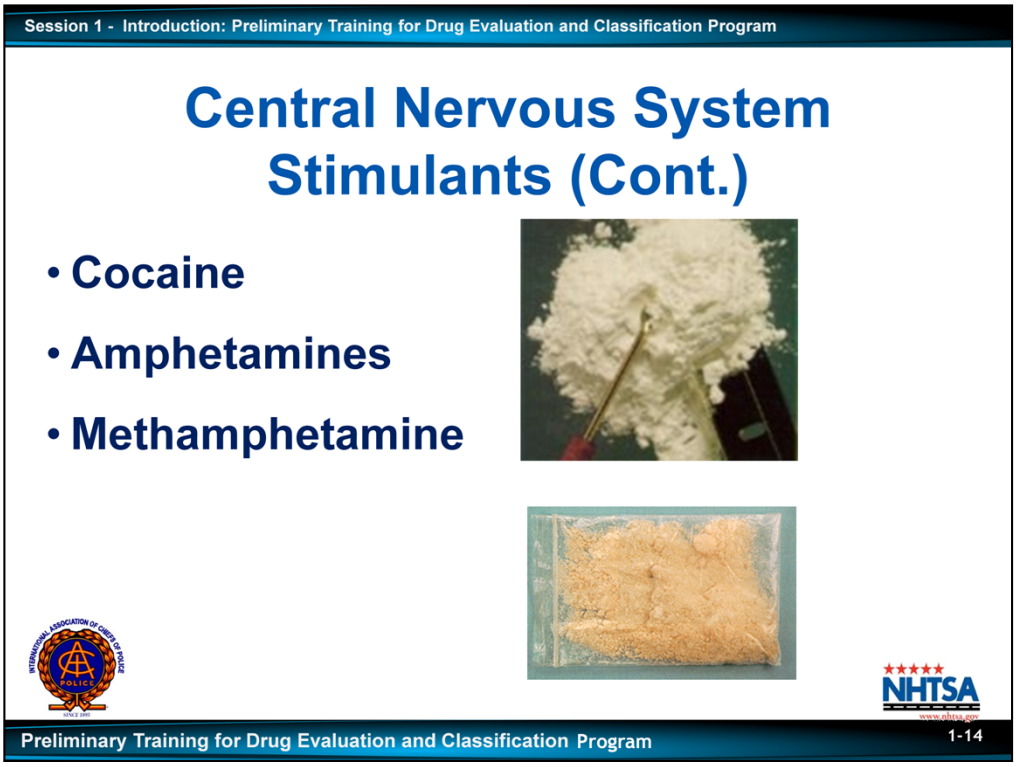
CNS Stimulants are a widely abused category of drugs.

- In 2008, 20.8 million Americans aged 12 or older (8.8 percent of persons in that age group) had used prescription type stimulants non-medically at least once in their lifetime. *Source: National Survey on Drug Use and Health (NSDUH), 2011.*
- In 2011, there were 1.4 million cocaine users aged 12 or older comprising 0.5 percent of the U.S. population. *Source: NSDUH Report, 2011.*

Note: Instructors may wish to include statistics regarding the use of methamphetamines in their respective State. Several million appear to use amphetamines.

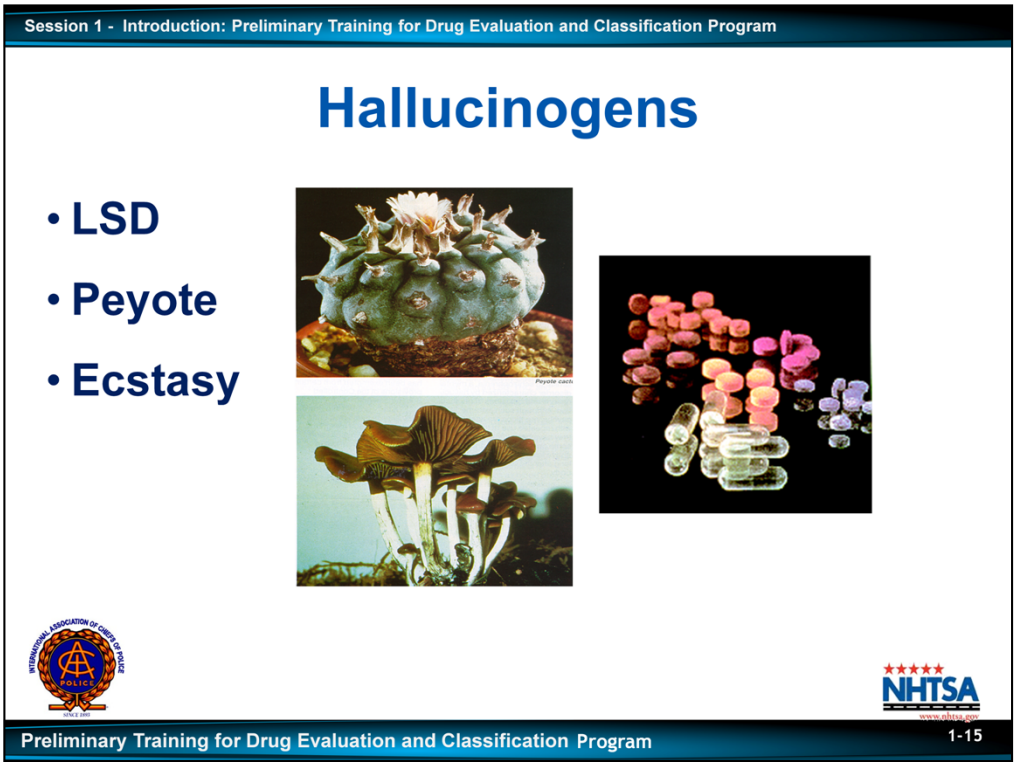
CNS Stimulants speed up the operation of the central nervous system, and of the various bodily functions controlled by the central nervous system.

- Cause the user to become hyperactive, extremely talkative.
- Speech may become rapid and repetitive.
- Heart rate increases.
- Blood pressure increases.



- Body temperature rises, user may become excessively sweaty.
- Induce emotional excitement, restlessness, irritability.
- Can induce cardiac arrhythmia (unstable beating of the heart), cardiac seizures and death.

Remind participants of well-known athletes and others who have died because of cocaine abuse.



Hallucinogens

Hallucinogens are also widely abused. In recent years an increase in the abuse of LSD, Ecstasy (MDMA), and many new hallucinogens has been reported.

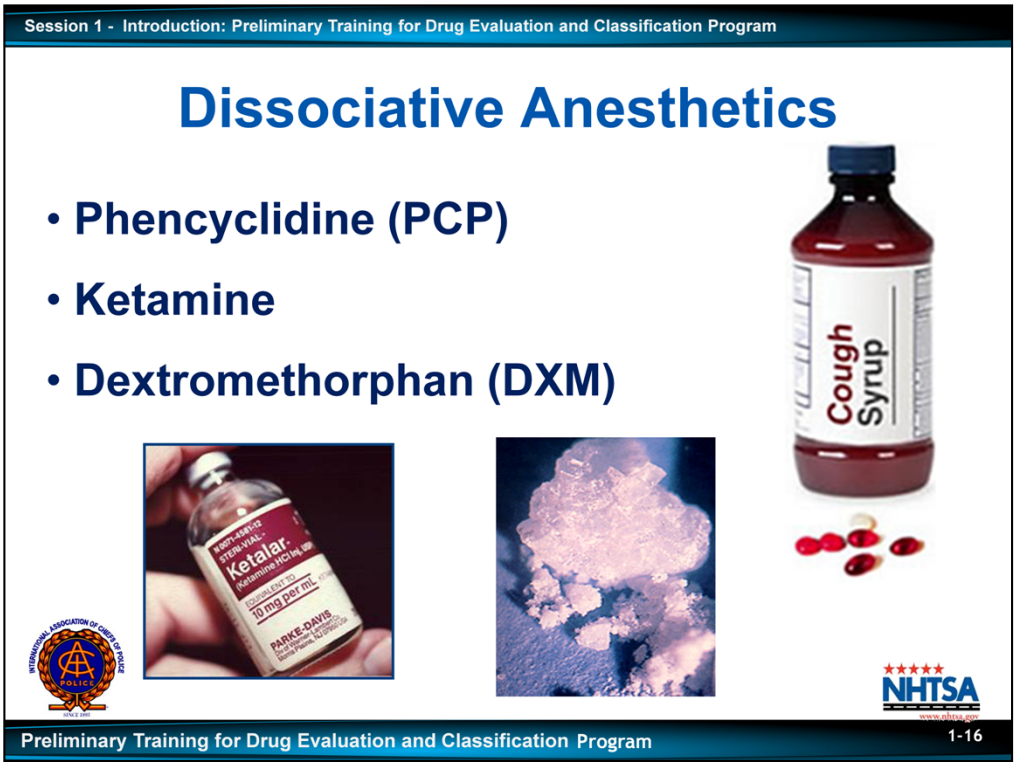
Point out that LSD and Peyote are only two examples of hallucinogens.

- It is estimated that approximately one million Americans abuse hallucinogens.
- Hallucinogens may create hallucinations. That is, they may create apparent perceptions of things not truly present.
- Hallucinogens may also create very distorted perceptions, so that the user sees, hears and smells things in a way quite different from how they really look, sound and smell.

Instead, Hallucinogens cause the nervous system to send strange or false signals to the brain.

- Produce sights, sounds and odors that aren't real.
- Induce a temporary condition very much like psychosis or insanity.
- Can create a "mixing" of sensory modes, for example, the user "hears colors," "sees music," "tastes sounds," etc., referred to as "Synesthesia."

Point out that, with all of these false and distorted perceptions, the person under the influence of hallucinogens would be a very unsafe driver.



Dissociative Anesthetics

This category includes drugs such as PCP, its analogs and Dextromethorphan (DXM). These drugs generally inhibit pain by cutting off or “dissociating” the brain’s perception of the pain.

Point out that this category used to be Phencyclidine (PCP) but was changed in 2005.

Point out that the definition of Dissociative Anesthetics is contained in the Glossary of Terms in the DRE Pre-School Participant Manual.

The medical community considers PCP to be a Hallucinogen. However, because of the symptomatology PCP presents, it is included in this category.

Point out that people under the influence of a Dissociative Anesthetic may exhibit a combination of the signs associated with hallucinogens, CNS Stimulants and Depressants.

PCP is a synthetic drug, i.e., it does not occur naturally but must be produced in a laboratory-like setting.
PCP is similar to CNS depressants in that it depresses brain wave activity.

- Slows down thought.
- Slows reaction time.
- Slows verbal responses.

But PCP is similar to CNS stimulants in that it activates the parts of the brain that control emotions, the heart and the other autonomic systems.

- Heart rate increases.
- Blood pressure increases.
- Adrenalin production increases.
- Body temperature rises.
- Muscles become rigid.

And PCP is similar to hallucinogens in that it distorts or “scrambles” signals received by the brain.

- Sight, hearing, taste, smell and touch may all be distorted.
- User’s perception of time and space may be distorted.
- User may become paranoid, feel isolated and depressed.
- User may develop a strong fear of and pre-occupation with death.
- User may become unpredictably violent.

PCP analogs include Ketamine, Ketalar, Ketajet, and Ketaset.

Dextromethorphan (DXM) is an ingredient found in numerous over-the-counter cough and cold remedies.

Narcotic Analgesics
There are two subcategories of Narcotic Analgesics:
- Opiates are derivatives of Opium.
- Synthetics are produced chemically in the laboratory. They are not in any way derived from Opium but produce similar effects.

Point out that heroin, morphine and codeine are natural derivatives of opium.

Point out that methadone is an example of a synthetic narcotic.

The word “Analgesic” means pain reliever. All of the drugs in this category reduce the person’s reaction to pain.
- According to the 2008 National Survey on Drug Use and Health report, approximately 1.5% of Americans have used heroin, however, those numbers are growing.
- Heroin is highly addictive.
- Many addicts support their habit by stealing property and converting it to cash.

In addition to reducing pain, they produce euphoria, drowsiness, apathy, lessened physical activity and sometimes impaired vision.
Persons under the influence of Narcotic Analgesics often pass into a semi-conscious type of sleep or near sleep.

Point out that this condition is often called being “on the nod.”
- Persons “on the nod” may be awakened easily.
- They often are sufficiently alert to respond to questions effectively.

Higher doses of Narcotic Analgesics can induce coma, respiratory failure and death.

Inhalants

Inhalants are fumes of certain substances that produce mind altering results.

There are three subcategories of inhalants:

- Volatile solvents (e.g., gasoline, glue, oil-based paint, cleaning fluids, paint remover, etc.)
- Aerosols (i.e., the propellant gases in spray cans, e.g., hair sprays, insecticides, etc.)
- Anesthetic Gases (e.g., nitrous oxide, ether, amyl nitrite, butyl nitrate, etc.)

Different inhalants produce different effects.

- Many produce effects similar to those of CNS depressants.
- A few produce stimulant like effects.
- Some produce hallucinogenic effects.

The inhalant abuser's attitude and demeanor can vary from inattentive, stuporous and passive to irritable, violent and dangerous.

The abuser's speech will often be slow, thick and slurred.

Cannabis
Write "Cannabis Sativa" on the dry erase board or flip-chart.

The category "Cannabis" includes the various forms and products of the Cannabis Sativa plant.

The active ingredient in Cannabis is the substance known as "Delta-9 Tetrahydrocannabinol," or "THC."

Write "⊿-9 THC" on the dry erase board or flip-chart.

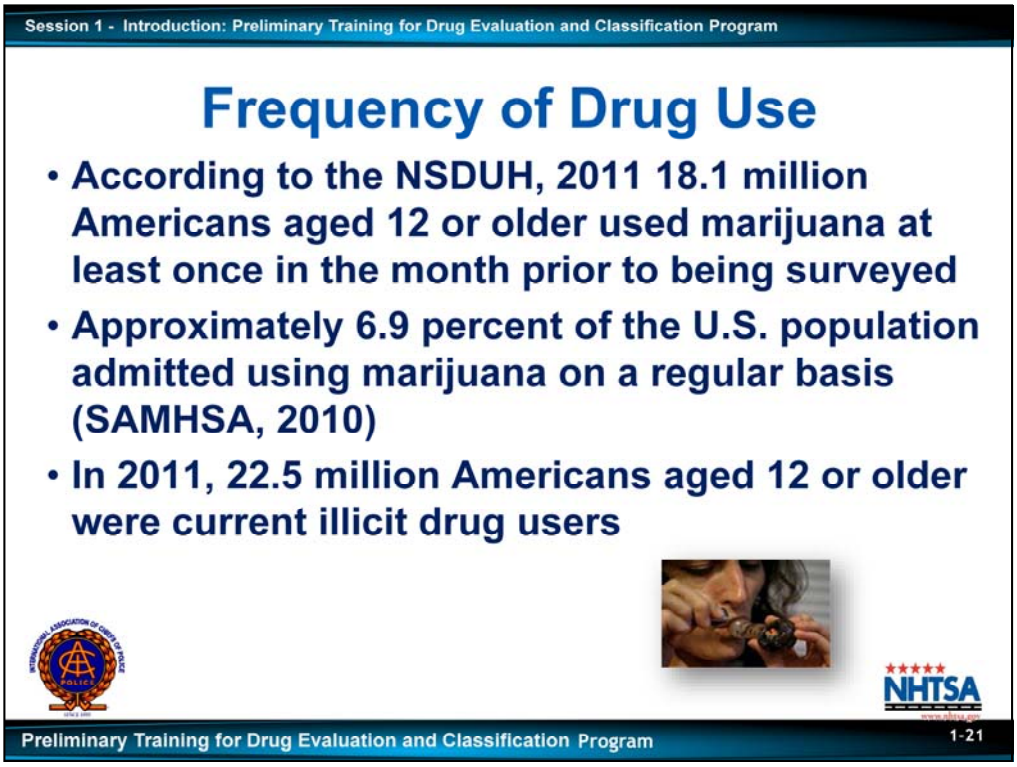
Apart from alcohol, marijuana is one of the most commonly abused drugs.

Marijuana continues to be the most used illegal drug in the U.S. with 17.4 million Americans over the age of 12 reporting use in the past month. *Source: NSDUH, 2010.*

Cannabis appears to interfere with the attention process. Drivers under the influence of marijuana often do not pay attention to their driving.

Point out that divided attention Standardized Field Sobriety Tests usually disclose the best evidence of cannabis impairment.

Cannabis also produces a distortion of the user's perception of time, an increased heart rate (often over 100 beats per minute) and a reddening of the conjunctiva.



Frequency of Drug Use

- According to the National Survey on Drug Use and Health, 2011, 18.1 million Americans aged 12 or older used marijuana at least once in the month prior to being surveyed.

- Approximately 6.9 percent of the U.S. population admitted using marijuana on a regular basis (SAMHSA, 2011).

- In 2011, an estimated 22.5 million Americans aged 12 or older were current illicit drug users. *Source: National Survey on Drug Use and Health (NSDUH, 2011).*

- In 2011, approximately 6.1 million people aged 12 years or older used psychotherapeutic drugs non-medically.
  Source: National Survey on Drug Use and Health (NSDUH, 2011).

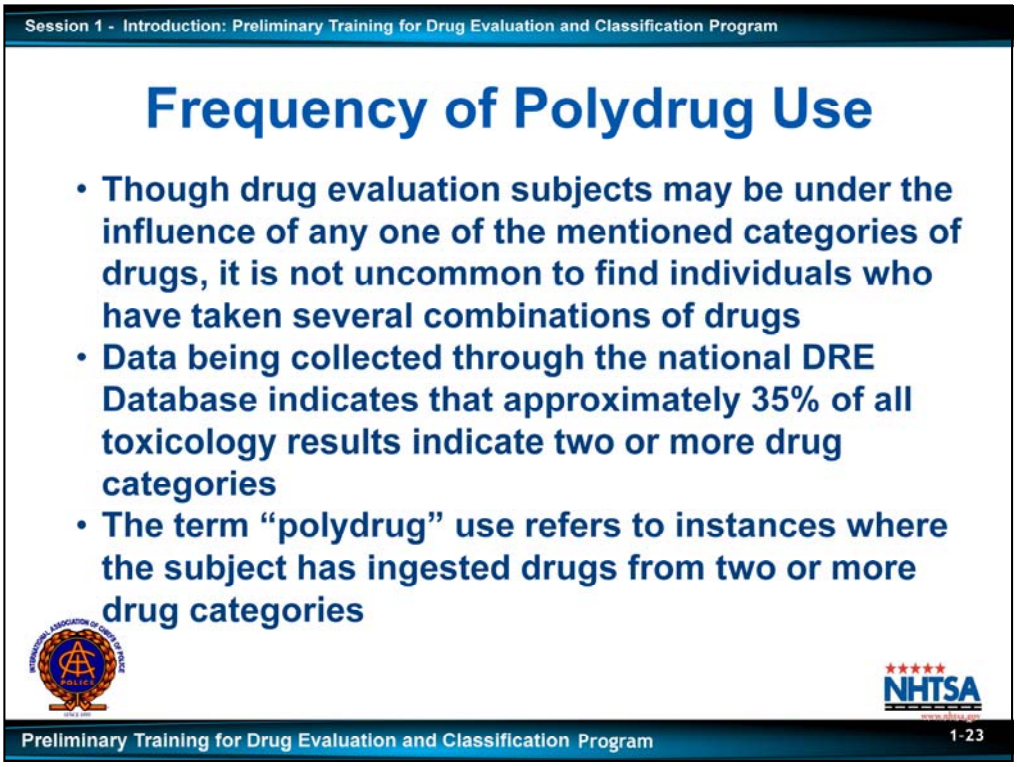
- The exact number of prescription drug users in the U.S. is unknown. However, in 2011 a record 4 billion drug prescriptions were written in the U.S.

  Source: Medical News Today, September 18, 2012.

- Among those aged 50 to 59, the rate of past month illicit drug use increased from 2.7 percent in 2002 to 5.8 percent in 2010. This trend may partially reflect the aging into this age group of the "Baby Boomer" generation, whose lifetime rate of illicit drug use is higher than those of older cohorts.

- Approximately 6.0 million Americans abuse prescription drugs each year.
  Source: NSDUH Report, 2010.

- In 2010, 10.6 million persons aged 12 or older reported driving under the influence of illicit drugs during the past year. This corresponds to 4.0 percent of the population aged 12 or older. In 2010, the rate was highest among young adults aged 18 to 25 (12.7 percent).



Polydrug Use

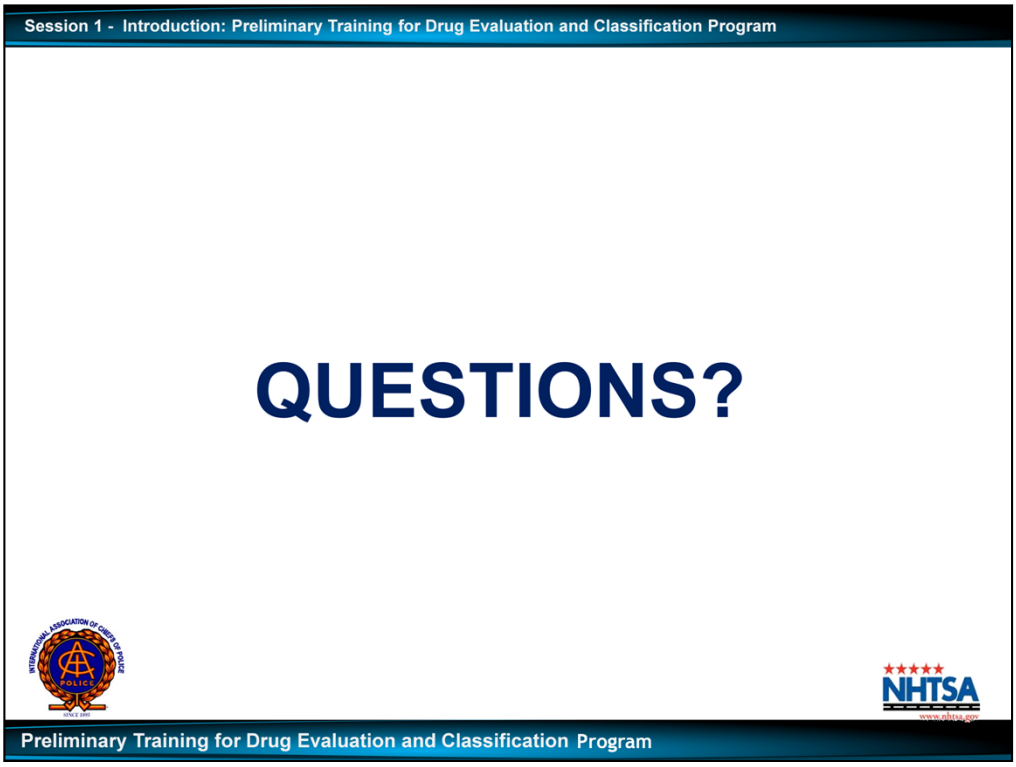
- Though drug evaluation subjects may be under the influence of any one of the mentioned categories of drugs, it is not uncommon to find individuals who have taken several combinations of drugs.

- Data being collected through the national DRE Database indicates that approximately 35% of all toxicology results indicate two or more drug categories.

- The term "polydrug" use refers to instances where the subject has ingested drugs from two or more drug categories.

  Point out that the drugs do not have to be actually ingested at exactly the same time.

- Most controlled prescription drug abusers are polydrug abusers. One study reported that approximately 75% of persons who abuse alcohol also abuse illicit drugs. *Source: "Under the Counter: The Diversion and Abuse of Controlled Prescription Drugs in the U.S.," National Center on Addiction and Substance Abuse, July 2005.*



Solicit participants' questions about the Introduction to Preliminary Training for Drug Evaluation and Classification Program.

DRUG EVALUATION AND CLASSIFICATION PROGRAM

GLOSSARY OF TERMS

ACCOMMODATION REFLEX

The adjustment of the eyes for viewing at various distances. Meaning the pupils will automatically constrict as objects move closer and dilate as objects move further away.

ADDICTION

Habitual, psychological, and physiological dependence on a substance beyond one's voluntary control.

ADDITIVE EFFECT

One mechanism of polydrug interaction. For a particular indicator of impairment, two drugs produce an additive effect if they both affect the indicator in the same way. For example, cocaine elevates pulse rate and PCP also elevates pulse rate. The combination of cocaine and PCP produces an additive effect on pulse rate.

AFFERENT NERVES

See: "Sensory Nerves."

ALKALOID

A chemical that is found in, and can be physically extracted from, some substance. For example, morphine is a natural alkaloid of opium. It does not require a chemical reaction to produce morphine from opium.

ANALGESIC

A drug that relieves or allays pain.

ANALOG (of a drug)

An analog of a drug is a chemical that is very similar to the drug, both in terms of molecular structure and in terms of psychoactive effects. For example, the drug Ketamine is an analog of PCP.

ANESTHETIC

A drug that produces a general or local insensibility to pain and other sensation.

ANTAGONISTIC EFFECT

One mechanism of polydrug interaction. For a particular indicator of impairment, two drugs produce an antagonistic effect if they affect the indicator in opposite ways. For example, heroin constricts pupils while cocaine dilates pupils. The combination of heroin and cocaine produces an antagonistic effect on pupil size. Depending on how much of each drug was taken, and on when they were taken, the suspect's pupils could be constricted, or dilated, or within the DRE Average range of pupil size.

ARRHYTHMIA

An abnormal heart rhythm.

ARTERY

The strong, elastic blood vessels that carry blood away the heart.

ATAXIA

A blocked ability to coordinate movements. A staggering walk and poor balance may be caused by damage to the brain or spinal cord. This can be the result of trauma, birth defect, infection, tumor, or drug use.

AUTONOMIC NERVE

A motor nerve that carries messages to the muscles and organs that we do not consciously control. There are two kinds of autonomic nerves, the sympathetic nerves and parasympathetic nerves.

AXON

The part of a neuron (nerve cell) that sends out a neurotransmitter.

BAC

(Blood Alcohol Concentration) - The percentage of alcohol in a person's blood.

BrAC

(Breath Alcohol Concentration) - The percentage of alcohol in a person's blood as measured by a breath testing device.

BLOOD PRESSURE

The force exerted by blood on the walls of the arteries. Blood pressure changes continuously, as the heart cycles between contraction and expansion.

BRADYCARDIA

Abnormally slow heart rate.

BRADYPNEA

Abnormally slow rate of breathing.

BRUXISM

Grinding the teeth. This behavior is often seen in person who are under the influence of cocaine or other CNS Stimulants.

CANNABIS

This is the drug category that includes marijuana. Marijuana comes primarily from the leaves of certain species of Cannabis plants that grow readily all over the temperate zones of the earth. Hashish is another drug in this category, and consists of the compressed leaves from female Cannabis plants. The active ingredient in both Marijuana and Hashish is a chemical called delta-9 tetrahydrocannabinol, usually abbreviated THC.

CARBOXY THC

A metabolite of THC (tetrahydrocannabinol).

CHEYNE- STOKES RESPIRATION

Abnormal pattern of breathing. Marked by breathlessness and deep, fast breathing.

CNS (Central Nervous System)
A system within the body consisting of the brain, the brain stem, and the spinal cord.

CNS DEPRESSANTS
One of the seven drug categories. CNS Depressants include alcohol, barbiturates, anti-anxiety tranquilizers, and numerous other drugs.

CNS STIMULANTS
One of the seven drug categories. CNS Stimulants include Cocaine, the Amphetamines, Ritalin, Desoxyn, and numerous other drugs.

CONJUNCTIVITIS
An inflammation of the mucous membrane that lines the inner surface of the eyelids caused by infection, allergy, or outside factors. May be bacterial or viral. Persons suffering from conjunctivitis may show symptoms in one eye only. This condition is commonly referred to as "pink eye", a condition that could be mistaken for the bloodshot eyes produced by alcohol or Cannabis.

CONVERGENCE
The "crossing" of the eyes that occurs when a person is able to focus on a stimulus as it is pushed slowly toward the bridge of their nose. (See, also, "Lack of Convergence".)

CRACK/ROCK
Cocaine base, appears as a hard chunk form resembling pebbles or small rocks. It produces a very intense, but relatively short duration "high".

CURRICULUM VITAE
A written summary of a person's education, training, experience, noteworthy achievements and other relevant information about a particular topic.

CYCLIC BEHAVIOR
A manifestation of impairment due to certain drugs, in which the suspect alternates between periods (or cycles) of intense agitation and relative calm. Cyclic behavior, for example, sometimes will be observed in persons under the influence of PCP.

DELIRIUM
A brief state characterized by incoherent excitement, confused speech, restlessness, and possible hallucinations.

DENDRITE
The part of a neuron (nerve cell) that receives a neurotransmitter.

DIACETYL MORPHINE
The chemical name for Heroin.

DIASTOLIC
The lowest value of blood pressure. The blood pressure reaches its diastolic value when the heart is fully expanded, or relaxed (Diastole).

DIPLOPIA
Double vision.

DISSOCIATIVE ANESTHETICS

One of the seven drug categories. Includes drugs that inhibits pain by cutting off or disassociating the brain's perception of pain. PCP and its analogs are considered Dissociative Anesthetics.

DIVIDED ATTENTION

Concentrating on more than one thing at a time. The four psychophysical tests used by DREs require the suspect to divide attention.

DOWNSIDE EFFECT

An effect that may occur when the body reacts to the presence of a drug by producing hormones or neurotransmitters to counteract the effects of the drug consumed.

DRUG

Any substance that, when taken into the human body, can impair the ability of the person to operate a vehicle safely.

DYSARTHIA

Slurred speech. Difficult, poorly articulated speech.

DYSPNEA

Shortness of breath.

DYSMETRIA

An abnormal condition that prevents the affected person from properly estimating distances linked to muscular movements.

DYSPHORIA

A disorder of mood. Feelings of depression and anguish.

EFFERENT NERVES

See: "Motor Nerves".

ENDOCRINE SYSTEM

The network of glands that do not have ducts and other structures. They secrete hormones into the blood stream to affect a number of functions in the body.

EXPERT WITNESS

A person skilled in some art, trade, science or profession, having knowledge of matters not within knowledge of persons of average education, learning and experience, may assist a jury in arriving at a verdict by expressing an opinion on a state of facts shown by the evidence and based upon his or her special knowledge. (NOTE: Only the court can determine whether a witness is qualified to testify as an expert.)

FLASHBACK

A vivid recollection of a portion of an hallucinogenic experience. Essentially, it is a very intense daydream. There are three types: (1) emotional -- feelings of panic, fear, etc.; (2) somatic -- altered body sensations, tremors, dizziness, etc.; and (3) perceptual -- distortions of vision, hearing, smell, etc.

GARRULITY
Chatter, rambling or pointless speech. Talkative.

GENERAL INDICATOR
Behavior or observations of the subject that are observed and not specifically tested for. (Observational and Behavioral Indicators)

HALLUCINATION
A sensory experience of something that does not exist outside the mind, e.g., seeing, hearing, smelling, or feeling something that isn't really there. Also, having a distorted sensory perception, so that things appear differently than they are.

HALLUCINOGENS
One of the seven drug categories. Hallucinogens include LSD, MDMA, Peyote, Psilocybin, and numerous other drugs.

HASHISH
A form of cannabis made from the dried and pressed resin of a marijuana plant.

HASH OIL
Sometimes referred to as “marijuana oil” it is a highly concentrated syrup-like oil extracted from marijuana. It is normally produced by soaking marijuana in a container of solvent, such as acetone or alcohol for several hours and after the solvent has evaporated, a thick syrup-like oil is produced with a high THC content.

HEROIN
A powerful and widely-abused narcotic analgesic that is chemically derived from morphine. The chemical, or generic name of heroin is "diacetyl morphine".

HIPPUS
A rhythmic change in the pupil size of the eyes, as they dilate and constrict when observed in darkness independent of changes in light intensity, accommodation (focusing), or other forms of sensory stimulation. Normally only observed with specialized equipment.

HOMEOSTASIS
The dynamic balance, or steady state, involving levels of salts, water, sugars, and other materials in the body's fluids.

HORIZONTAL GAZE NYSTAGMUS (HGN)
Involuntary jerking of the eyes occurring as the eyes gaze to the side.

HORMONES
Chemicals produced by the body's endocrine system that are carried through the blood stream to the target organ. They exert great influence on the growth and development of the individual, and that aid in the regulation of numerous body processes.

HYDROXY THC
A metabolite of THC (tetrahydrocannabinol).

HYPERFLEXIA
Exaggerated or over extended motions.

HYPERGLYCEMIA
Excess sugar in the blood.

HYPERPNEA
A deep, rapid or labored breathing.

HYPERPYREXIA
Extremely high body temperature.

HYPERREFLEXIA
A neurological condition marked by increased reflex reactions.

HYPERTENSION
Abnormally high blood pressure. Do not confuse this with hypotension.

HYPOGLYCEMIA
An abnormal decrease of blood sugar levels.

HYPOPNEA
Shallow or slow breathing.

HYPOTENSION
Abnormally low blood pressure. Do not confuse this with hypertension.

HYPOTHERMIA
Decreased body temperature.

ICE
A crystalline form of methamphetamine that produces a very intense and fairly long-lasting "high".

INHALANTS
One of the seven drug categories. The inhalants include volatile solvents (such as glue and gasoline), aerosols (such as hair spray and insecticides) and anesthetic gases (such as nitrous oxide).

INSUFFLATION
See "snorting".

INTEGUMENTARY SYSTEM
The skin and accessory structures, hair and nails. Functions include protection, maintenance of body temperature, excretion of waste, and sensory perceptions.

INTRAOCULAR
"Within the eyeball".

KOROTKOFF SOUNDS

A series of distinct sounds produced by blood passing through an artery, as the external pressure on the artery drops from the systolic value to the diastolic value.

LACK OF CONVERGENCE

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

MAJOR INDICATORS

Physiological signs that are specifically assessed and are, for the most part, involuntary reflecting the status of the central nervous system (CNS) homeostasis (Physiological Indicators)

MARIJUANA

Common term for the Cannabis Sativa plant. Usually refers to the dried leaves of the plant. This is the most common form of the cannabis category.

MARINOL

A drug containing a synthetic form of THC (tetrahydrocannabinol). Marinol belongs to the cannabis category of drugs, but marinol is not produced from any species of cannabis plant.

MEDICAL RULEOUT

A determination made by a DRE that the condition of a suspected impaired driver is more likely related to a medical issue that effected the person’s ability to operate a vehicle safely.

METABOLISM

The sum of all chemical processes that take place in the body as they relate to the movements of nutrients in the blood after digestion, resulting in growth, energy, release of wastes, and other body functions. The process by which the body, using oxygen, enzymes and other internal chemicals, breaks down ingested substances such as food and drugs so they may be consumed and eliminated. Metabolism takes place in two phases. The first step is the constructive phase (anabolism) where smaller molecules are converted to larger molecules. The second steps is the destructive phase (catabolism) where large molecules are broken down into smaller molecules.

METABOLITE

A chemical product, formed by the reaction of a drug with oxygen and/or other substances in the body.

MIOSIS

Abnormally small (constricted) pupils.

MOTOR NERVES

Nerves that carry messages away from the brain, to be body's muscles, tissues, and organs. Motor nerves are also known as efferent nerves.

MUSCULAR HYPERTONICITY

Rigid muscle tone.

MYDRIASIS

Abnormally large (dilated) pupils.

NARCOTIC ANALGESICS

One of the seven drug categories. Narcotic analgesics include opium, the natural alkaloids of opium (such as morphine, codeine and thebaine), the derivatives of opium (such as heroin, dilaudid, oxycodone and percodan), and the synthetic narcotics.

NERVE

A cord-like fiber that carries messages either to or from the brain. For drug evaluation and classification purposes, a nerve can be pictured as a series of "wire-like" segments, with small spaces or gaps between the segments.

NEURON

A nerve cell. The basic functional unit of a nerve. It contains a nucleus within a cell body with one or more axons and dendrites.

NEUROTRANSMITTER

Chemicals that pass from the axon of one nerve cell to the dendrite of the next cell, and that carry messages across the gap between the two nerve cells.

NULL EFFECT

One mechanism of polydrug interaction. For a particular indicator of impairment, two drugs produce a null effect if neither of them affects that indicator. For example, PCP does not affect pupil size, and alcohol does not affect pupil size. The combination of PCP and alcohol produces a null effect on pupil size.

NYSTAGMUS

An involuntary jerking of the eyes.

"ON THE NOD"

A semi-conscious state of deep relaxation. Typically induced by impairment due to Heroin or other narcotic analgesics. The suspect's eyelids droop, and chin rests on the chest. Suspect may appear to be asleep, but can be easily aroused and will respond to questions.

OVERLAPPING EFFECT

One mechanism of polydrug interaction. For a particular indicator of impairment, two drugs produce an overlapping effect if one of them affects the indicator but the other doesn't. For example, cocaine dilates pupils while alcohol doesn't affect pupil size. The combination of cocaine and alcohol produces an overlapping effect on pupil size: the combination will cause the pupils to dilate.

PALLOR

An abnormal paleness or lack of color in the skin.

PARANOIA

Mental disorder characterized delusions and the projection of personal conflicts, that are ascribed to the supposed hostility of others.

PARAPHERNALIA

Drug paraphernalia are the various kinds of tools and other equipment used to store, transport or ingest a drug. Hypodermic needles, small pipes, bent spoons, etc., are examples of drug paraphernalia. The singular form of the word is "paraphernalium". For example, one hypodermic needle would be called a "drug paraphernalium".

PARASYMPATHETIC NERVE

An autonomic nerve that commands the body to relax and to carry out tranquil activities. The brain uses parasympathetic nerves to send "at ease" commands to the muscles, tissues, and organs.

PARASYMPATHOMIMETIC DRUGS

Drugs that mimic neurotransmitter associated with the parasympathetic nerves. These drugs artificially cause the transmission of messages that produce lower blood pressure, drowsiness, etc.

PDR (Physician's Desk Reference)

A basic reference source for drug recognition experts. The PDR provides detailed information on the physical appearance and psychoactive effects of licitly-manufactured drugs.

PHENCYCLIDINE

A contraction of PHENYL CYCLOHEXYL PIPERIDINE, or PCP. Formerly used as a surgical anesthetic, however, it has no current legitimate medical use in humans.

PHENYL CYCLOHEXYL PIPERIDINE (PCP)

Often called "phencyclidine" or “PCP”, it is a specific drug belonging to the Dissociative Anesthetics category.

PHYSIOLOGY

Physiology is the branch of biology dealing with the functions and activities of life or living matter and the physical and chemical phenomena involved.

PILOERECTION

Literally, "hair standing up", or goose bumps. This condition of the skin is often observed in persons who are under the influence of LSD.

POLYDRUG USE

Ingesting drugs from two or more drug categories.

PSYCHEDELIC

A mental state characterized by a profound sense of intensified or altered sensory perception sometimes accompanied by hallucinations.

PSYCHOPHYSICAL TESTS

Methods of investigating the mental (psycho-) and physical characteristics of a person suspected of alcohol or drug impairment. Most psychophysical tests employ the concept of divided attention to assess a suspect's impairment.

PSYCHOTOGENIC

Literally, "creating psychosis" or "giving birth to insanity". A drug is considered to be psychotogenic if persons who are under the influence of the drug become insane, and remain so after the drug wears off.

PSYCHOTOMIMETIC

Literally, "mimicking psychosis" or "impersonating insanity". A drug is considered to be psychotomimetic if persons who are under the influence of the drug look and act insane while they are under the influence.

PTOSIS

Droopy eyelids.

PULSE

The expansion and contraction of the walls of an artery, generated by the pumping action of blood.

PULSE RATE

The number of expansions of an artery per minute.

PUPILLARY LIGHT REFLEX

The pupils of the eyes will constrict and dilate depending on changes in lighting.

PUPILLARY UNREST

The continuous, irregular change in the size of the pupils that may be observed under room or steady light conditions.

REBOUND DILATION

A period of pupillary constriction followed by a period of pupillary dilation where the pupil steadily increases in size and does not return to its original constricted size.

RESTING NYSTAGMUS

Jerking of the eyes as they look straight ahead.

SCLERA

A dense white fibrous membrane that, with the cornea, forms the external covering of the eyeball (i.e., the white part of the eye).

SENSORY NERVES

Nerves that carry messages to the brain, from the various parts of the body, including notably the sense organs(eyes, ears, etc.). Sensory nerves are also known as afferent nerves.

SINSEMILLA

The unpollenated female cannabis plant, having a relatively high concentration of THC.

SFST

Standardized Field Sobriety Testing. There are three SFSTs, namely Horizontal Gaze Nystagmus (HGN), Walk and Turn, and One Leg Stand. Based on a series of controlled laboratory studies, scientifically validated clues of alcohol impairment have been identified for each of these three tests. They are the only Standardized Field Sobriety Tests for which validated clues have been identified.

SNORTING

One method of ingesting certain drugs. Snorting requires that the drug be in powdered form. The user rapidly draws the drug up into the nostril, usually via a paper or glass tube. Snorting is also known as insufflation.

SPHYGMOMANOMETER

A medical device used to measure blood pressure. It consists of an arm or leg cuff with an air bag attached to a tube and a bulb for pumping air into the bag, and a gauge for showing the amount of air pressure being pressed against the artery.

STETHOSCOPE

A medical instrument used, for drug evaluation and classification purposes, to listen to the sounds produced by blood passing through an artery.

SYMPATHETIC NERVE

An autonomic nerve that commands the body to react in response to excitement, stress, fear, etc. The brain uses sympathetic nerves to send "wake up calls" and "fire alarms" to the muscles, tissues and organs.

SYMPATHOMIMETIC DRUGS

Drugs that mimic the neurotransmitter associated with the sympathetic nerves. These drugs artificially cause the transmission of messages that produce elevated blood pressure, dilated pupils, etc.

SYNAPSE (or Synaptic Gap)

The gap or space between two neurons (nerve cells).

SYNESTHESIA

A sensory perception disorder, in which an input via one sense is perceived by the brain as an input via another sense. An example of this would be a person “hearing” a phone ring and “seeing” the sound as a flash of light. Synesthesia sometimes occurs with persons under the influence of hallucinogens.

SYSTOLIC

The highest value of blood pressure. The blood pressure reaches its systolic value when the heart is fully contracted (systole), and blood is sent surging into the arteries.

TACHYCARDIA

Abnormally rapid heart rate.

TACHYPNEA

Abnormally rapid rate of breathing.

THC (Tetrahydrocannabinol)

The principal psychoactive ingredient in drugs belonging to the cannabis category.

TOLERANCE

An adjustment of the drug user's body and brain to the repeated presence of the drug. As tolerance develops, the user will experience diminishing psychoactive effects from the same dose of the drug. As a result, the user typically will steadily increase the dose he or she takes, in an effort to achieve the same psychoactive effect.

TRACKS

Scar tissue usually produced by repeated injection of drugs, via hypodermic needle, along a segment of a vein.

VERTICAL GAZE NYSTAGMUS

An involuntary jerking of the eyes (up-and-down) which occurs as the eyes are held at maximum elevation. The jerking should be distinct and sustained.

VOIR DIRE

A French expression literally meaning “to see, to say.” Loosely, this would be rendered in English as “To seek the truth,” or “to call it as you see it.” In a law or court context, one application of voir dire is to question a witness to assess his or her qualifications to be considered an expert in some matter pending before the court.

VOLUNTARY NERVE

A motor nerve that carries messages to a muscle that we consciously control.

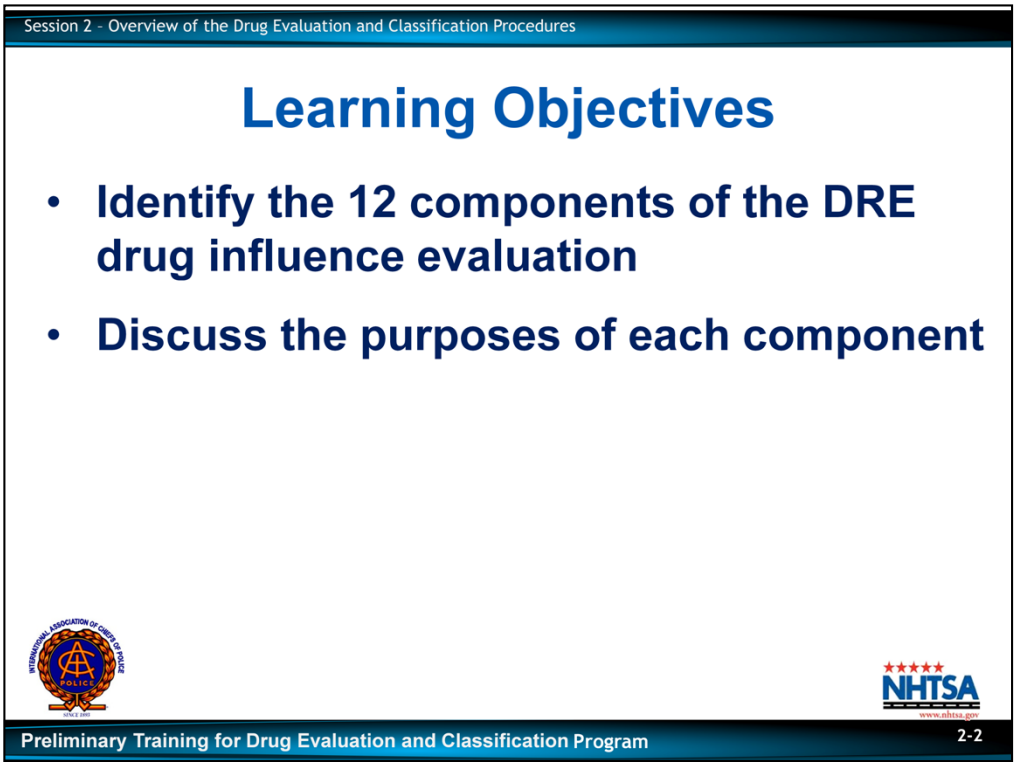
WITHDRAWAL

This occurs in someone who is physically addicted to a drug when he or she is deprived of the drug. If the craving is sufficiently intense, the person may become extremely agitated, and even physically ill.

60 Minutes

Session 2

Overview of the Drug Evaluation and Classification Procedures

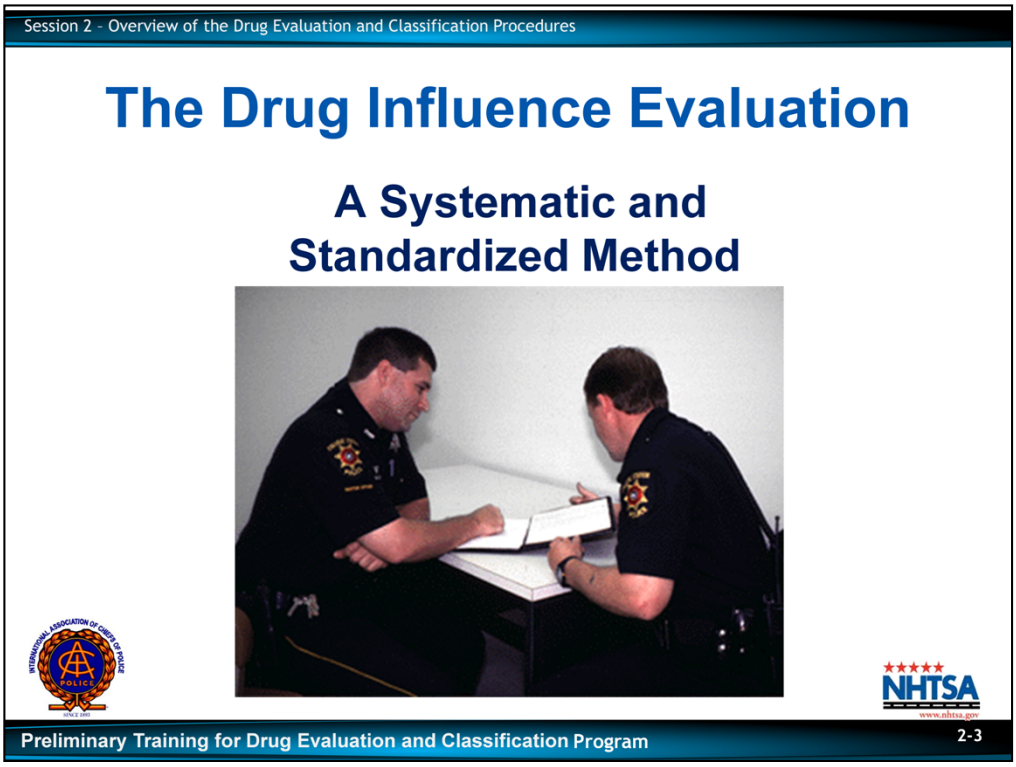


Briefly review the objectives, content and activities of this session.

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

- Identify the 12 components of the DRE drug influence evaluation.
- Discuss the purposes of each component.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Components of the Process	Instructor-Led Presentations
B. Video/DVD Demonstrations	Video/DVD Presentations



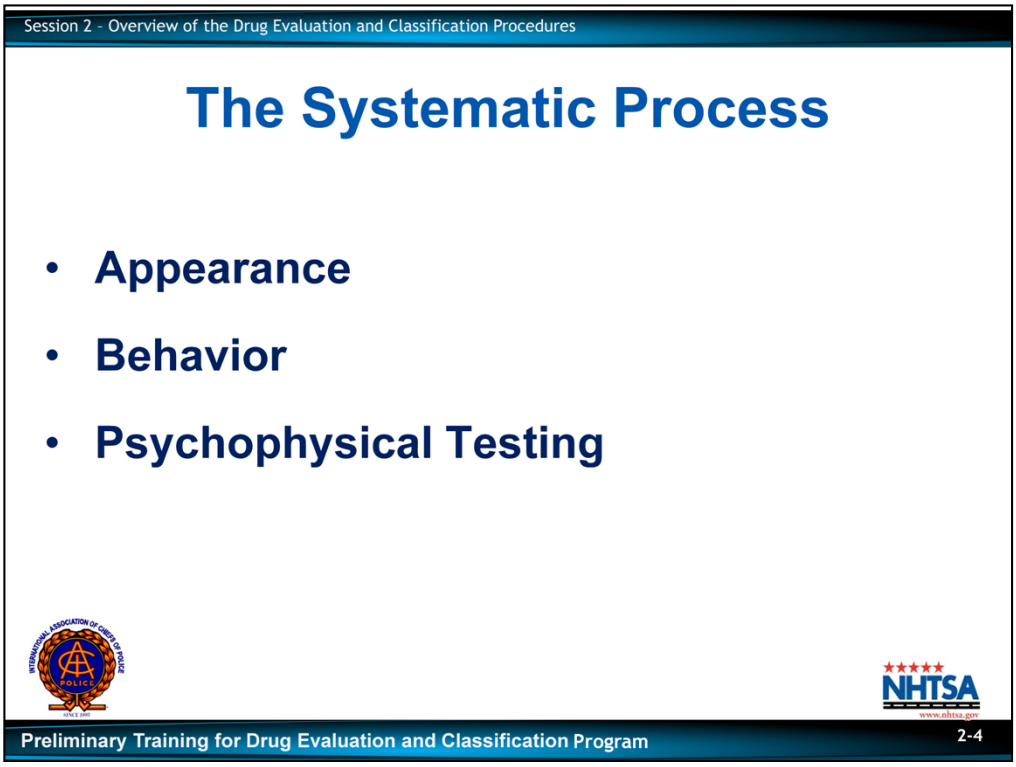
A. Components of the Process

The Drug Influence Evaluation

The Drug Evaluation and Classification Process is a systematic and standardized method of examining a subject to determine:

- Whether the subject is impaired by a drug or combination of drugs.
- If the impairment is resulting from an injury, illness, or drug related.
- The category (or categories) of drugs that is (or are) the likely cause of the subject's impairment.

The process is systematic in that it is based on a careful assessment of a variety of observable signs and symptoms that are known to be reliable indicators of drug impairment.



Write on dry erase board or flip-chart: "A SYSTEMATIC PROCESS."

Some of these observable signs and symptoms relate to the subject's appearance.

Write "appearance" on dry erase board or flip-chart.

Some of the signs and symptoms relate to the subject's behavior.

Write "behavior" on dry erase board or flip-chart.

Some relate to the subject's performance of carefully administered psychophysical tests.

Write 'psychophysical testing" on dry erase board or flip-chart.

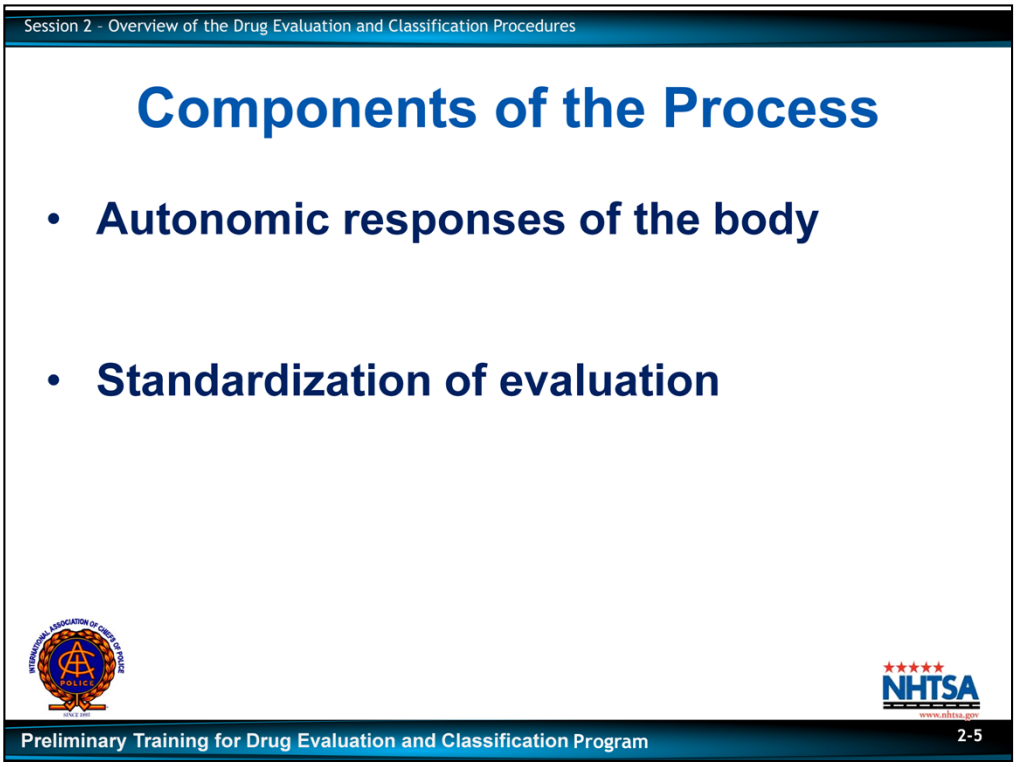
Ask participants: "What does 'psychophysical' mean?"

- Drugs impair the subject's ability to control his or her mind and body.
- Psychophysical tests can disclose that the subject's ability to control mind and body is impaired.

Point out that "psychophysical relates to the subject's mind (psyche) and body (physique).

- The specific manner in which the subject performs the psychophysical tests may indicate the type of impairment from which the subject is suffering. In turn, this may indicate the category or categories of drugs causing the impairment.

Some of the observable signs and symptoms relate to automatic responses of the subject's body to the specific drugs that are present.



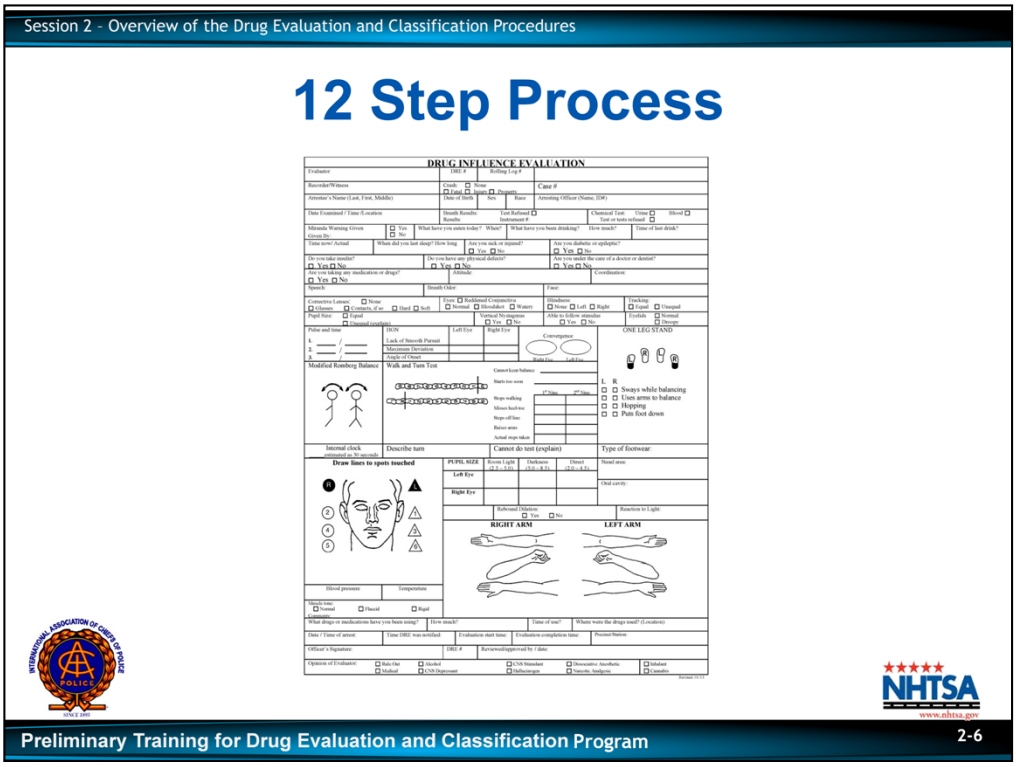
Write "autonomic responses of the body" on the dry erase board or flip-chart.

All of these reliable indicators are examined and carefully considered before a judgment is made concerning what categories of drugs are affecting the subject. The process is standardized in that it is administered the same way, to every subject, by every drug recognition expert.

- Standardization helps to ensure that no mistakes are made.

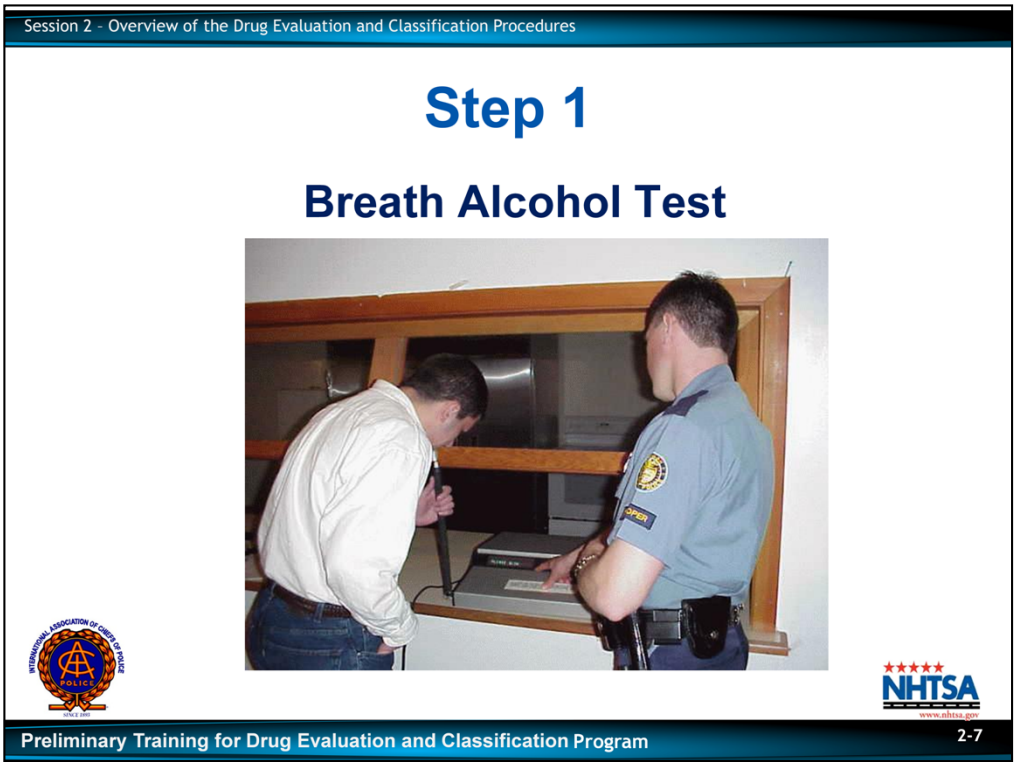
Ask participants: "Why is it so important to perform the drug evaluation and classification examination in exactly the same way, every time?" Probe to draw out all major reasons for standardization.

- No examinations are left out.
- No extraneous or unreliable "indicators" are included.
- Standardization helps to promote professionalism among drug recognition experts.
- Standardization helps to secure acceptance in court



12 Step Process

The Drug Evaluation and Classification process has twelve components or steps.

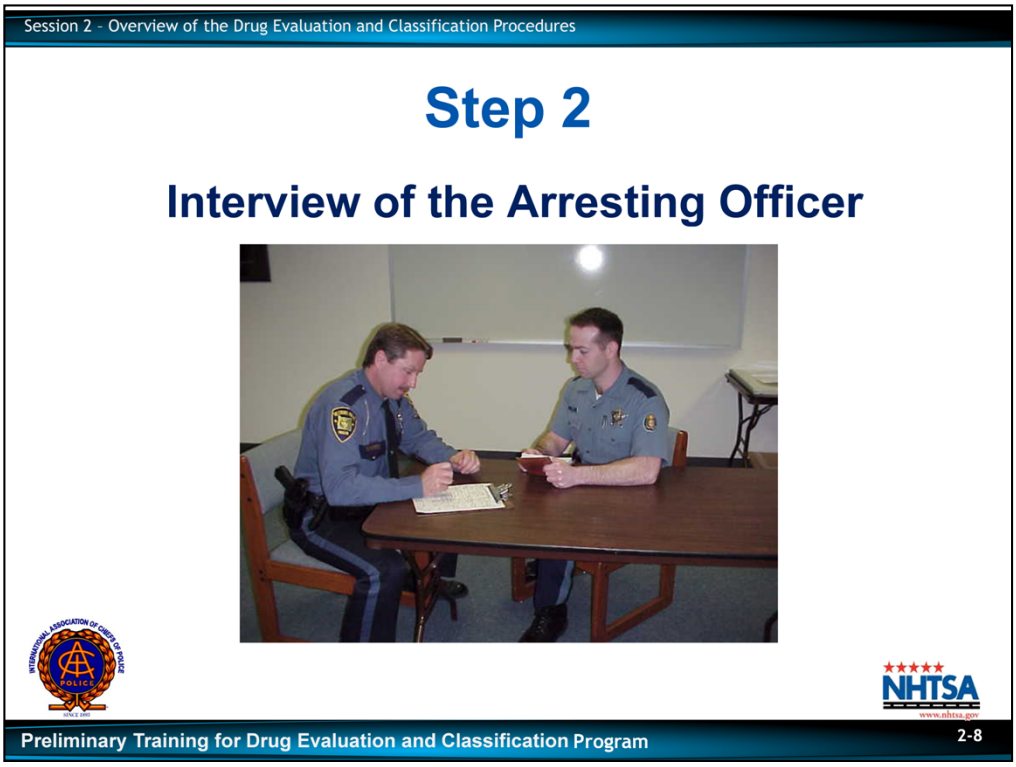


Breath Alcohol Test

Breath Alcohol Test to determine Blood Alcohol Concentration (BAC).

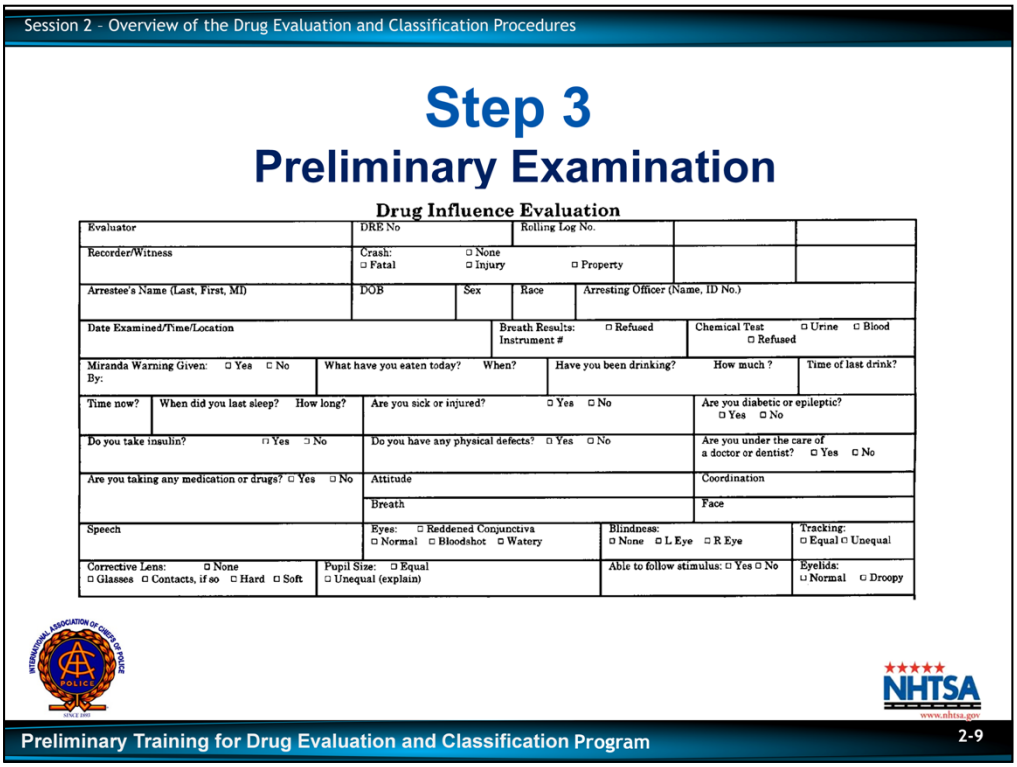
- The purpose of the breath test is to determine whether the specific drug, alcohol, may be contributing to the impairment observable in the subject.
- Obtaining an accurate measurement of BAC enables the DRE to assess whether alcohol may be the sole cause of the observable impairment, or whether it is likely that some other drug or drugs, or other complicating factors are contributing to the impairment.

Remind participants that many subjects who are under the influence of drugs other than alcohol also have alcohol in their bodies.



Interview of the Arresting Officer

- In most cases, the subjects you will examine will not be people that you arrested.
- The arresting officer may have seen or heard things that would be valuable indicators of the kinds of drugs the subject has ingested.
- The arresting officer, in searching the subject, may have uncovered drug related paraphernalia, or even drugs themselves.
- The arresting officer also may be able to alert you to important information about the subject's behavior that could be very valuable for your own safety.



Preliminary Examination

- The preliminary examination is your first opportunity to observe the subject closely and directly.

Point out that the preliminary examination begins the "hands on" with the subject. Use of protective gloves is imperative.

- A major purpose of the preliminary examination is to determine if the subject may be suffering from an injury or some other medical condition not necessarily related to drugs.

Analogy: The preliminary examination is a "fork in the road." It can help you decide whether to continue with the drug evaluation, or to pursue a possible medical complication, or to proceed with a DWI (alcohol) case.

Another major purpose of the preliminary examination is to begin systematically assessing the subject's appearance, behavior and automatic bodily responses for signs of drug-induced impairment.

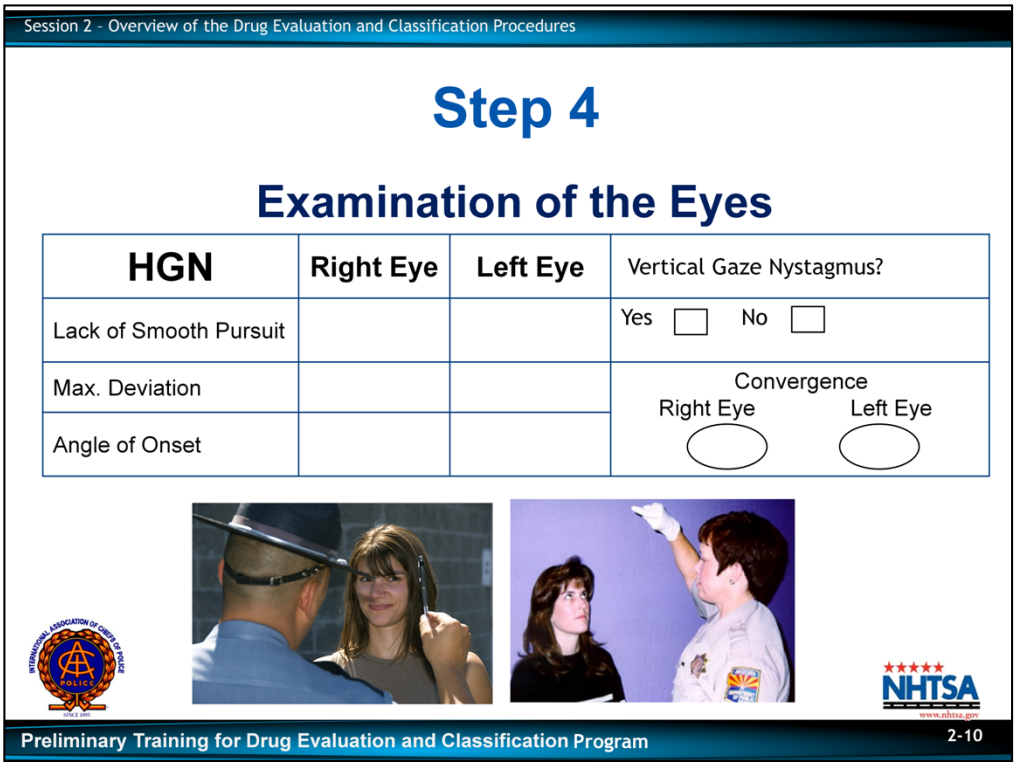
Point out "appearance," "behavior," and "automatic bodily responses" on dry erase board.

Emphasize that the term "preliminary" does not imply "unimportant." Very valuable evidence often comes to light during the preliminary examination.

The preliminary examination consists of a series of questions dealing with possible injuries or medical problems; observations of the subject's face, speech and breath; initial checks of the subject's eyes; and, an initial examination of the subject's pulse.

Emphasize that courts generally accept these questions as not being in conflict with the subject's Miranda rights. However, the participants must comply with their own department's policies as to whether they should advise subjects of their Miranda rights before asking these questions.

The initial examination of the eyes may reveal signs of injury or illness. A difference in pupil size of greater than 0.5 mm may indicate an injury or existing medical condition.



Examinations of the Eyes

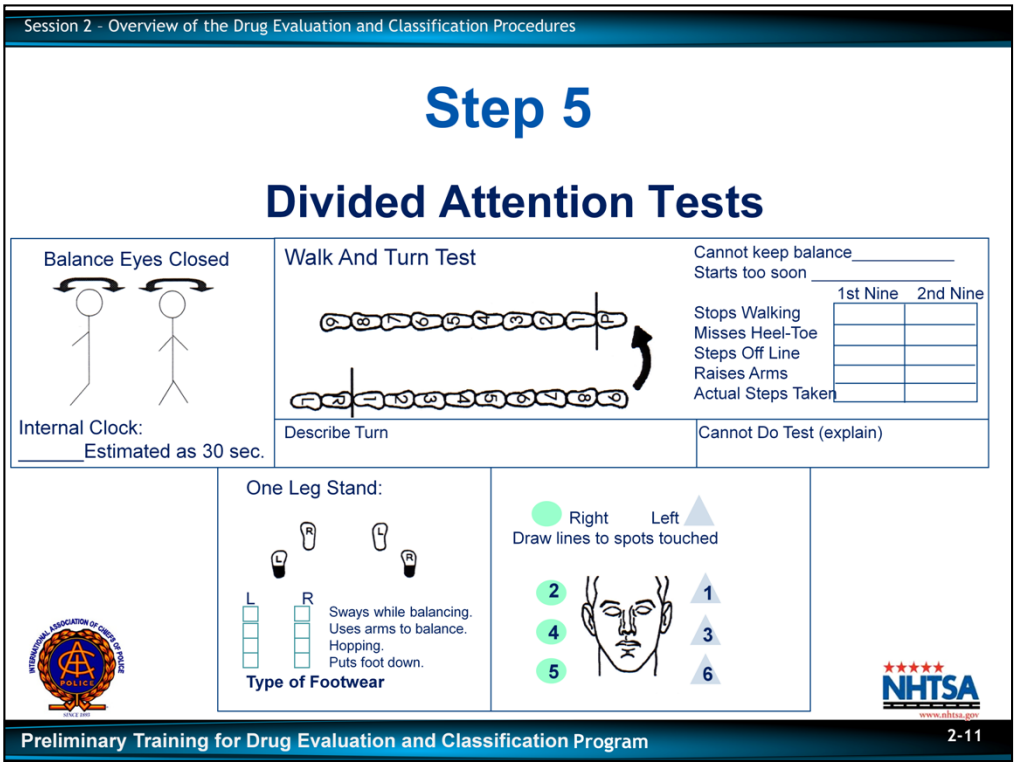
This is the time when DRE's will administer three tests of the subject's eyes; Horizontal Gaze Nystagmus, Vertical Gaze Nystagmus and Lack of Convergence.

Ask participants: "What do we look for, in a subject's eyes, to determine if he or she may be under the influence of alcohol?"
Probe, as necessary, to draw out the response "nystagmus."

Certain drugs produce very easily observable effects on the eyes.

- One of the most dramatic of these effects is nystagmus, which means an involuntary jerking of the eyes.
- Persons under the influence of alcohol usually will exhibit Horizontal Gaze Nystagmus, which is an involuntary jerking of the eyes as the eyes gaze to the side.
- Alcohol is not the only drug that causes nystagmus.
- Horizontal Gaze Nystagmus is not the only observable effect on the eyes that will be produced by various drugs.

Point out that the examinations of the eyes will be covered in much greater depth subsequently.



Divided Attention Psychophysical Tests

Ask participants: "What does 'divided attention' mean?"

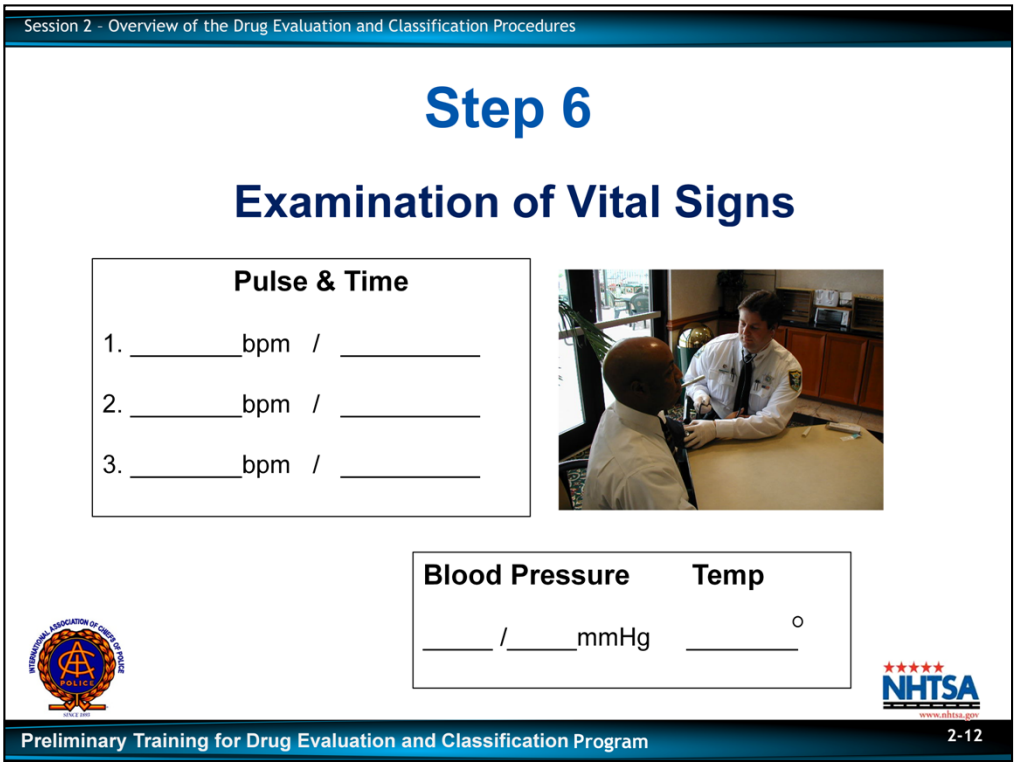
Probe, as necessary, to draw out responses indicating the concept of "concentrating on more than one thing or task at a time."

All drugs that impair driving ability will also impair the subject's ability to perform certain carefully designed divided attention tests.

These tests are familiar to you in the context of examining alcohol impaired subjects.

Point out that participants will have opportunities to practice administering these tests subsequently in the course.

- The same tests are very valuable for disclosing evidence of impairment due to drugs other than alcohol.



Examination of Vital Signs

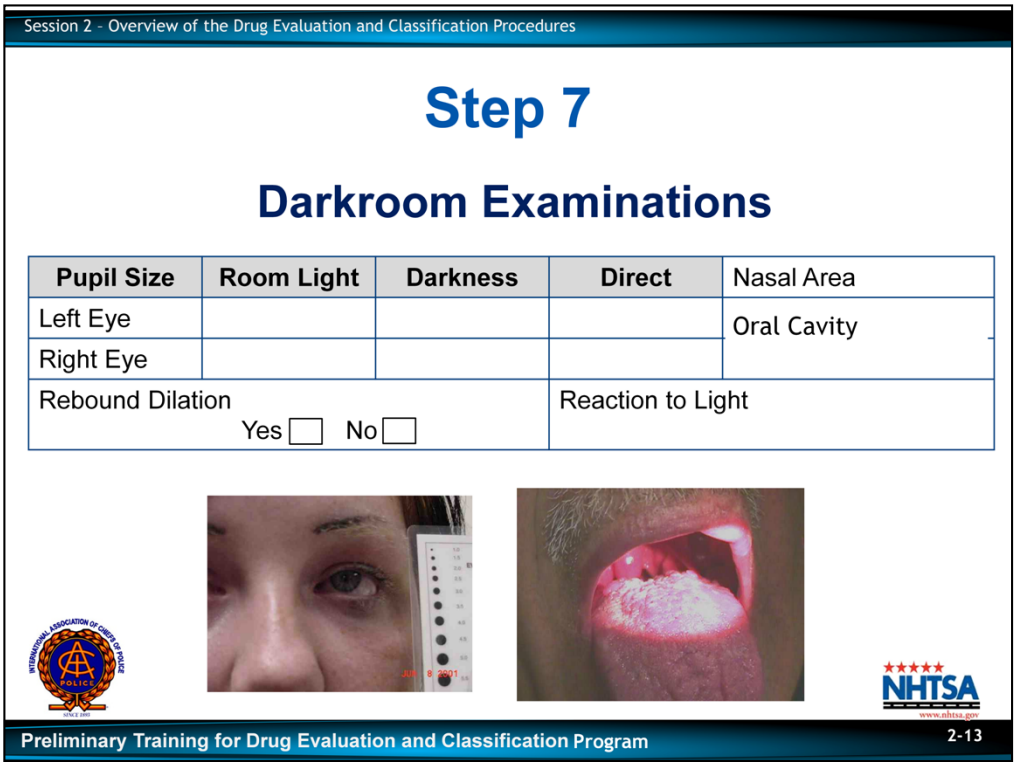
Many categories of drugs affect the operation of the heart, lungs and other major organs of the body.

These effects show up during examination of the subject's vital signs.

- The vital signs that are reliable indicators of drug influence include blood pressure, pulse, and temperature.
- Blood pressure is measured with two medical instruments; a stethoscope and a sphygmomanometer.

Point out that examinations of vital signs will be covered in depth subsequently, and that participants will have ample opportunity to practice measuring vital signs.

Point out that the participants will learn to use medical instruments, including a stethoscope, a sphygmomanometer, penlight, and an oral thermometer.



Dark Room Examinations

Many categories of drugs affect how the pupils of the eyes will appear, and how they respond to light.

- Certain kinds of drugs will cause the pupils to grow larger, or dilate.
- Some other drugs cause the pupils to be smaller , or constrict.

By systematically changing the amount of light entering the subject's eyes, we can observe the pupils' appearance and reaction under controlled conditions.

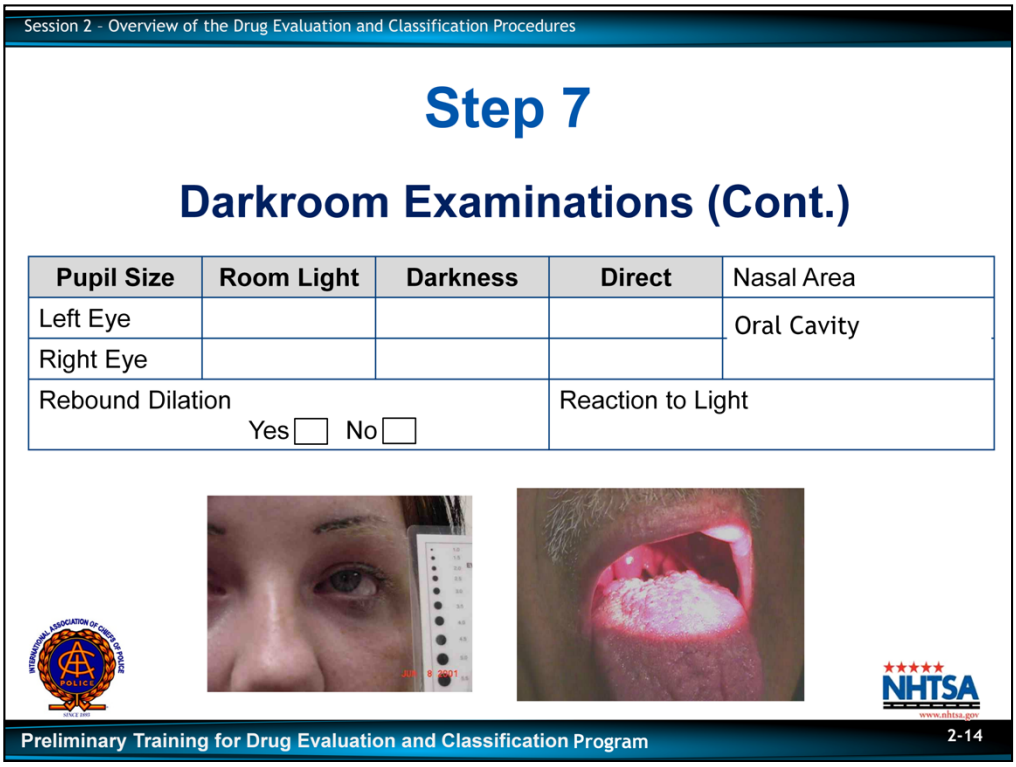
We carry out these examinations in a dark room, using a penlight to control the amount of illumination entering the subject's eyes.

Exhibit a penlight.

We use a device called a pupillometer to estimate the size of the subject's pupils.

Exhibit a pupillometer.

Point out that the pupillometer has a series of circles or semi-circles of various sizes. By lining up the circles or semi-circles alongside the subject's pupil, the pupil's size can be determined.



Select a participant to step forward and demonstrate the measurement of the participant's pupils.

Shine the penlight directly into the participant's eye, and again demonstrate the measurement of the pupils.

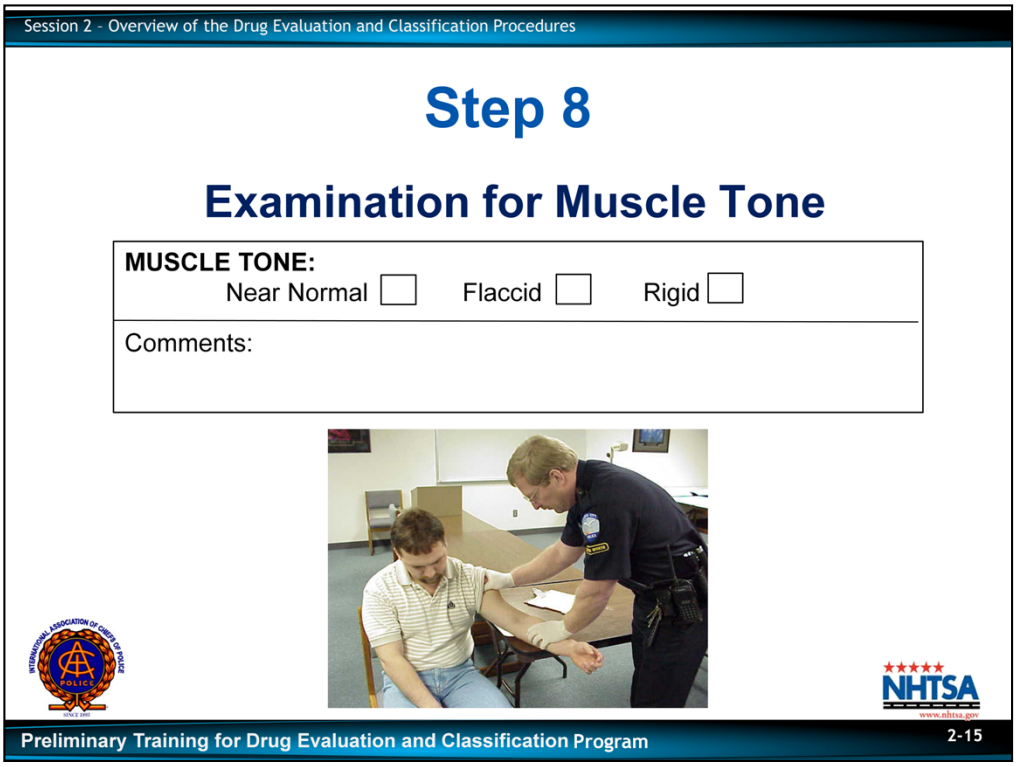
Demonstrate that the two eyes "work together"; i.e., shine the penlight into one eye, and demonstrate that the pupil of the other eye also constricts.

Other examinations are also conducted in the darkroom, using the penlight: i.e., examination of the nasal area and mouth for signs of drug use and for concealed contraband.

Demonstrate the examination of the participant's nasal area and oral cavity.

Excuse the participant and thank him or her for participating.

Point out that the participants will have several opportunities to practice conducting dark room examinations subsequently in the course.



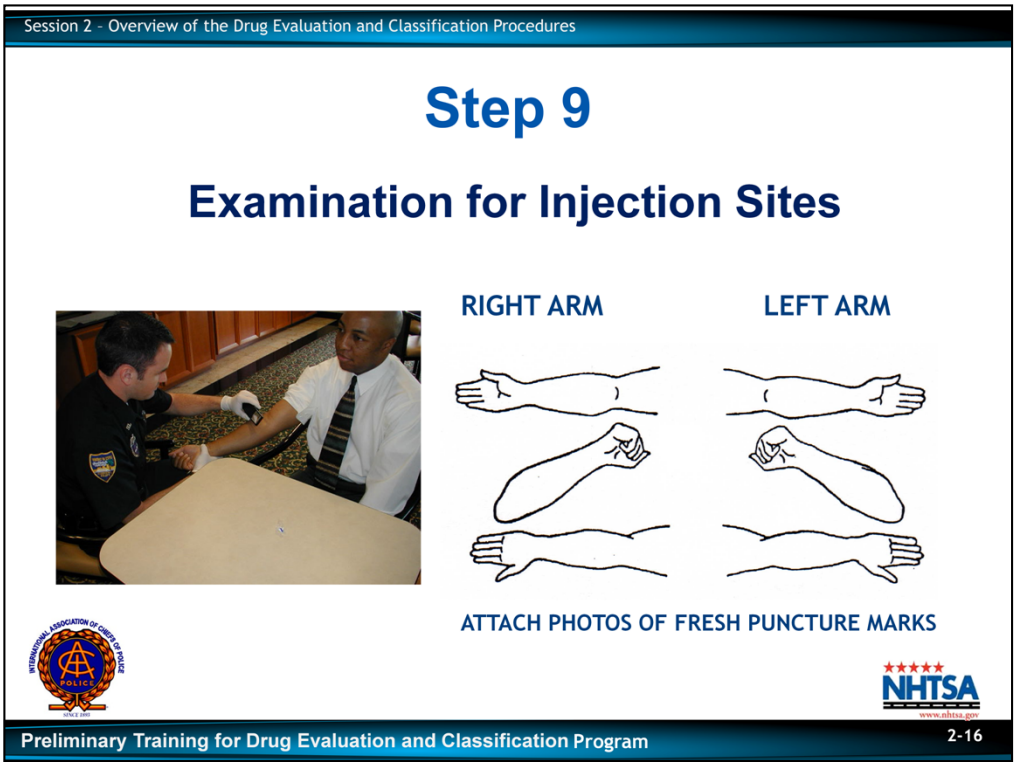
Examination of Muscle Tone

Certain categories of drugs can cause the user's muscles to become markedly tense, and rigid, while others can cause the muscles to be very flaccid, or loose and rubbery.

Evidence of muscle tone may come to light when the subject attempts to perform the divided attention test.

Evidence of muscle tone can also be observed when taking the subject's pulse and blood pressure.

Point out that examination for muscle tone will be covered in greater depth later in the course.



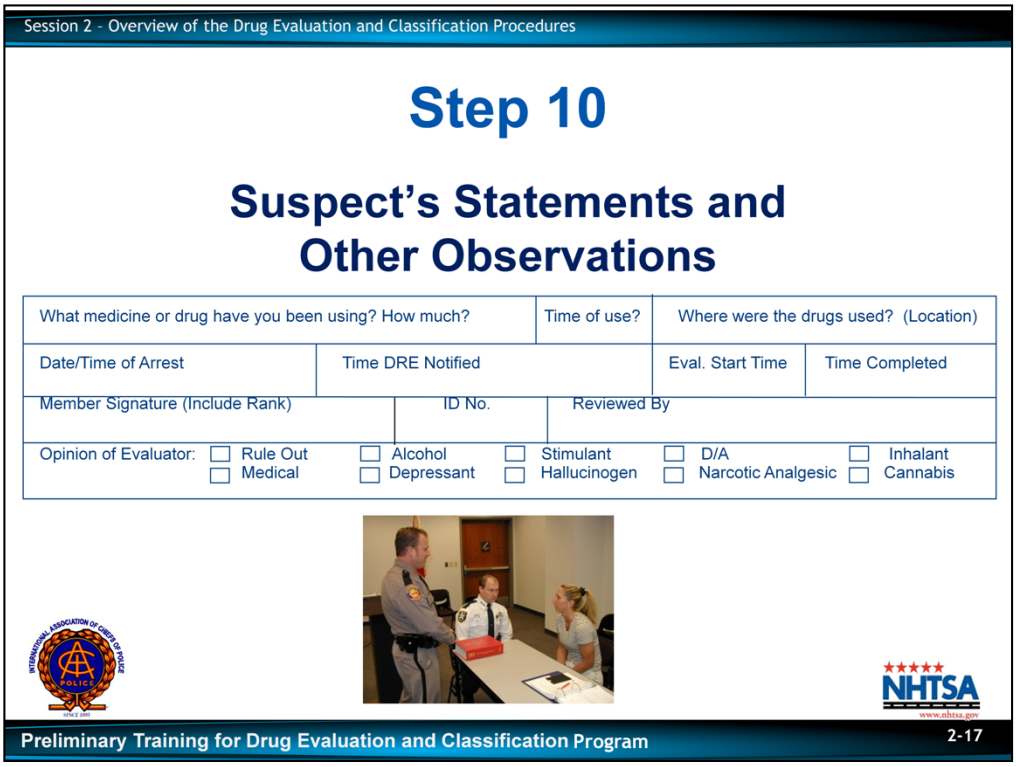
Examination for Injection Sites

Certain drugs are commonly injected by their users via hypodermic needles.

Ask participants: "What drug is most often associated with injection via hypodermic needle?"

Heroin is probably most commonly associated with injection, but several other types of drugs also are injected by many users.

Uncovering injection sites on a subject provides powerful evidence that he or she may be under the influence of specific types of drugs.



Suspect's Statements and Other Observations

At this point in the evaluation, the trained DRE should have reasonable grounds to believe that the subject is under the influence of a drug or drugs.

Point out that though the interview of the subject is the formal process of soliciting information about the subject's drug usage, any voluntary statements previously made during the evaluation should be noted and recorded.

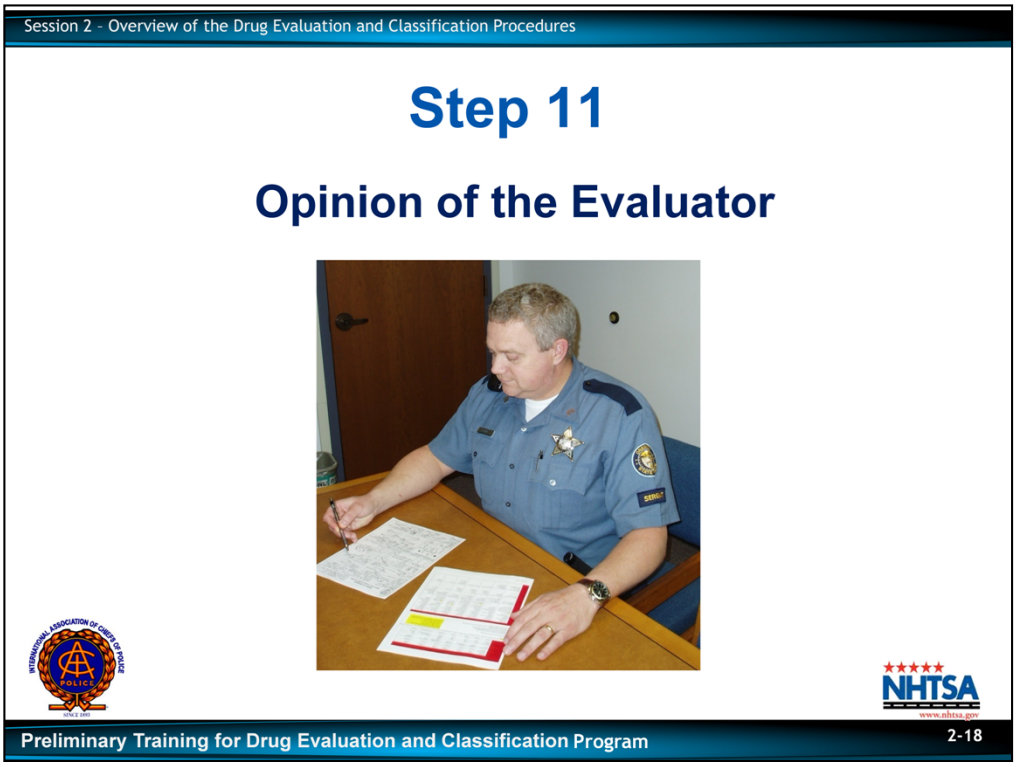
The DRE should also have at least an articulable suspicion as to the category or categories of drugs causing the impairment.

The DRE should proceed to interview the subject to confirm his or her suspicion/opinions concerning the drug or drugs involved.

Emphasize that any such interview can proceed only in conformance with formal admonition and strict observance of the subject's Constitutional rights.

The DRE must carefully record the subject's statements and any other observations that may constitute relevant evidence of drug induced impairment.

Point out that the appropriate procedures for interviewing subjects vary with the probable category or categories of drugs involved.



Opinion of the Evaluator

Based on all of the evidence and observations gleaned from the preceding ten steps, the DRE must reach an informed conclusion as to:

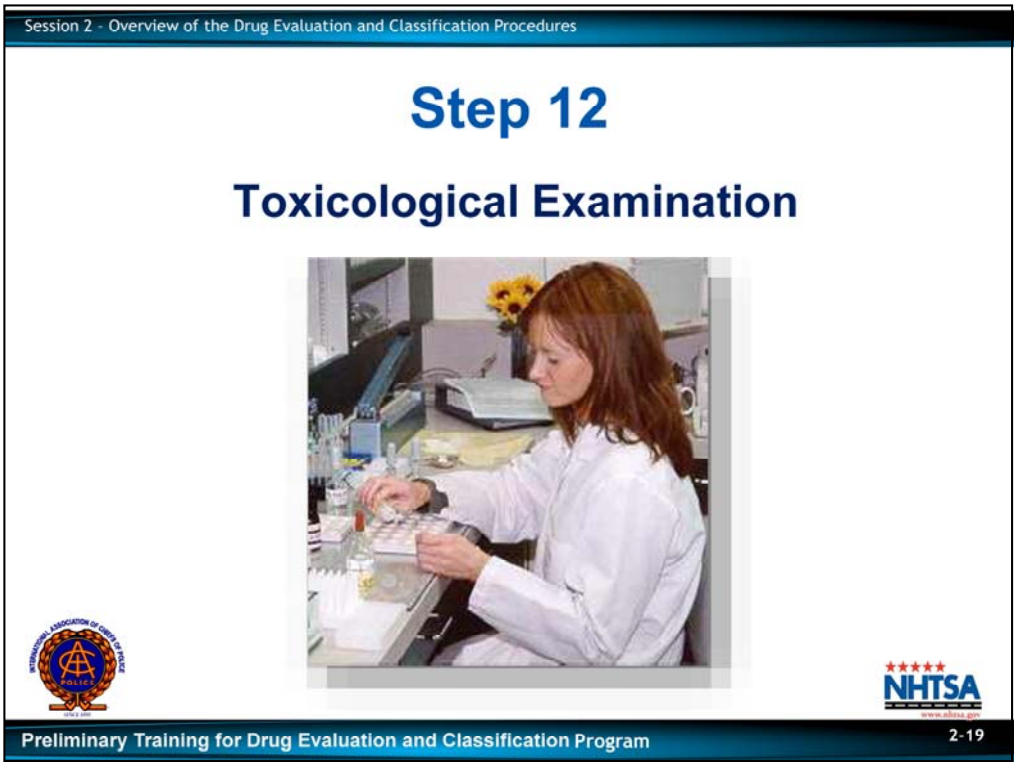
Whether the subject is under the influence of a drug or drugs.

If so, the probable category or categories of drugs causing the impairment.

The DRE must record a narrative summary of the facts forming the basis for his or her conclusions.

Point out that if the DRE concludes that the subject is impaired, you will state that in your written narrative report.

Point out that the DRE should refer to drug categories and not to specific drugs.



Toxicological Examination

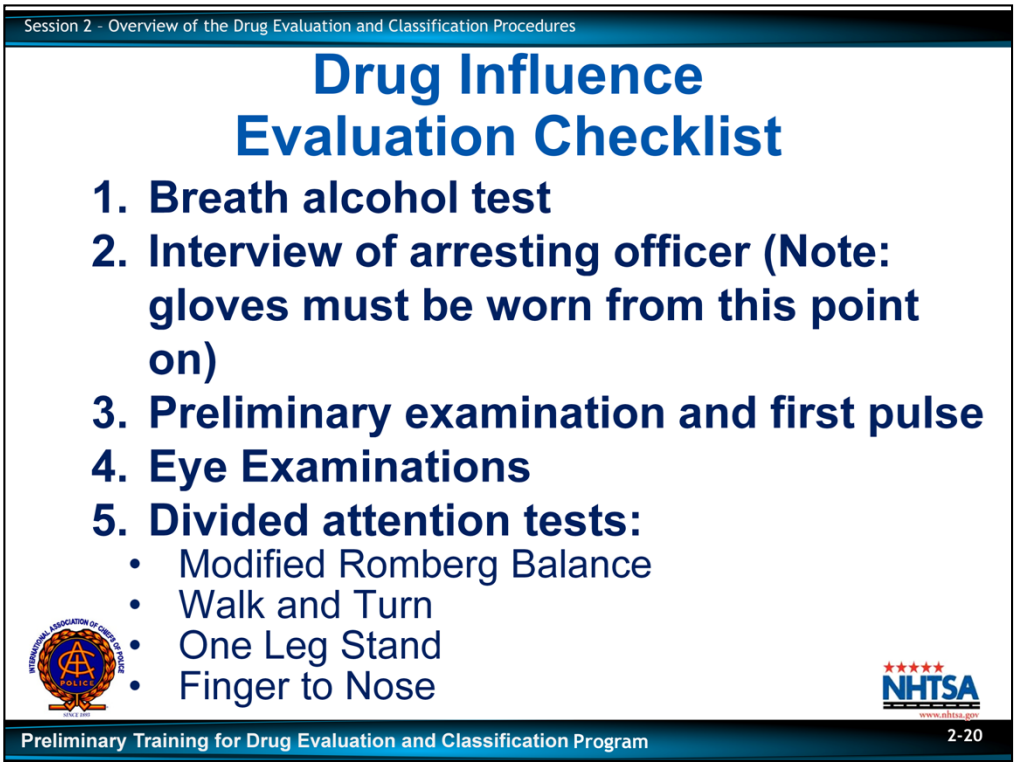
The toxicological examination is a chemical test or tests designed to obtain scientific, admissible evidence to substantiate the DRE's conclusions.

Departmental policy and procedures must be carefully and completely followed in requesting, obtaining and handling the chemical sample.

Point out in some cases, the arresting officer may have already obtained the specimen prior to the DRE's arrival.

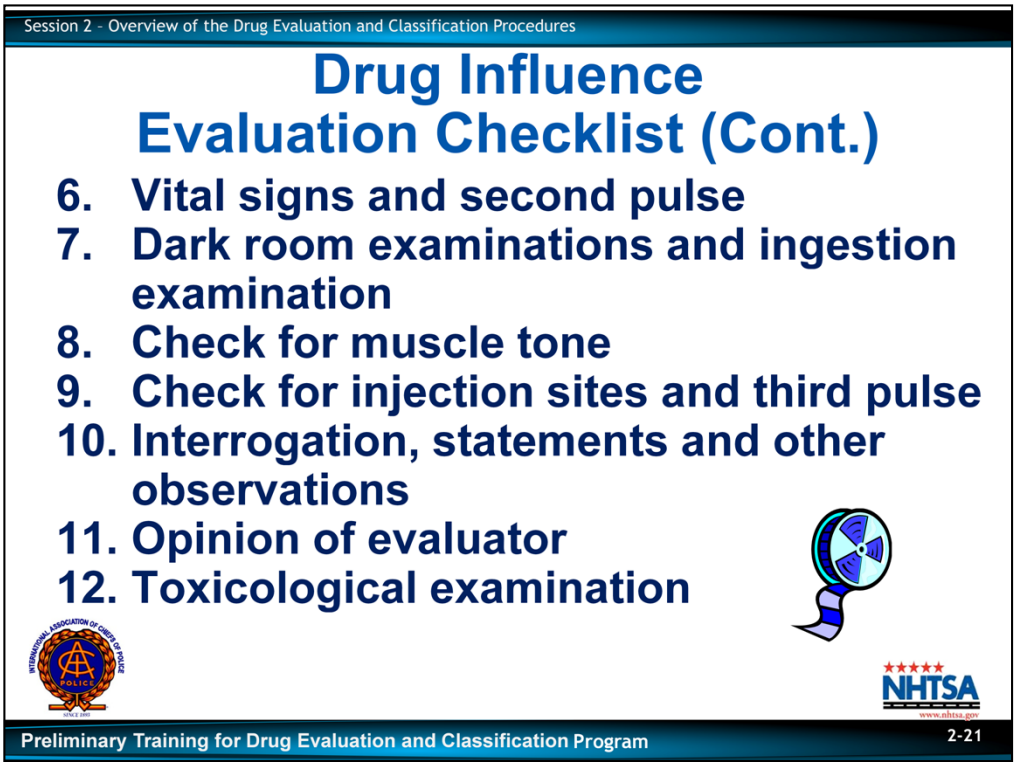
Point out that just because the subject refuses to provide a specimen for analysis does not affect the evaluation or your ability to form an opinion.

Solicit participants' comments and questions concerning this preview of the Drug Evaluation and Classification procedures.



Review of Drug Influence Evaluation Checklist

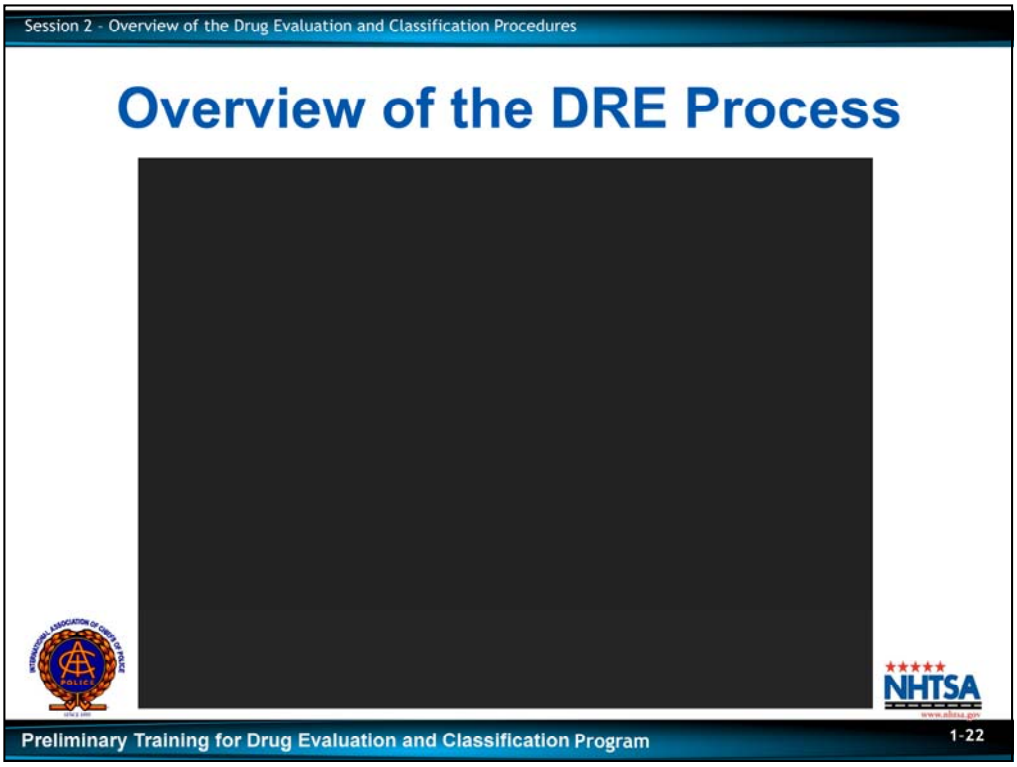
Instruct participants to turn to the Drug Influence Evaluation Checklist in their participant Manual.



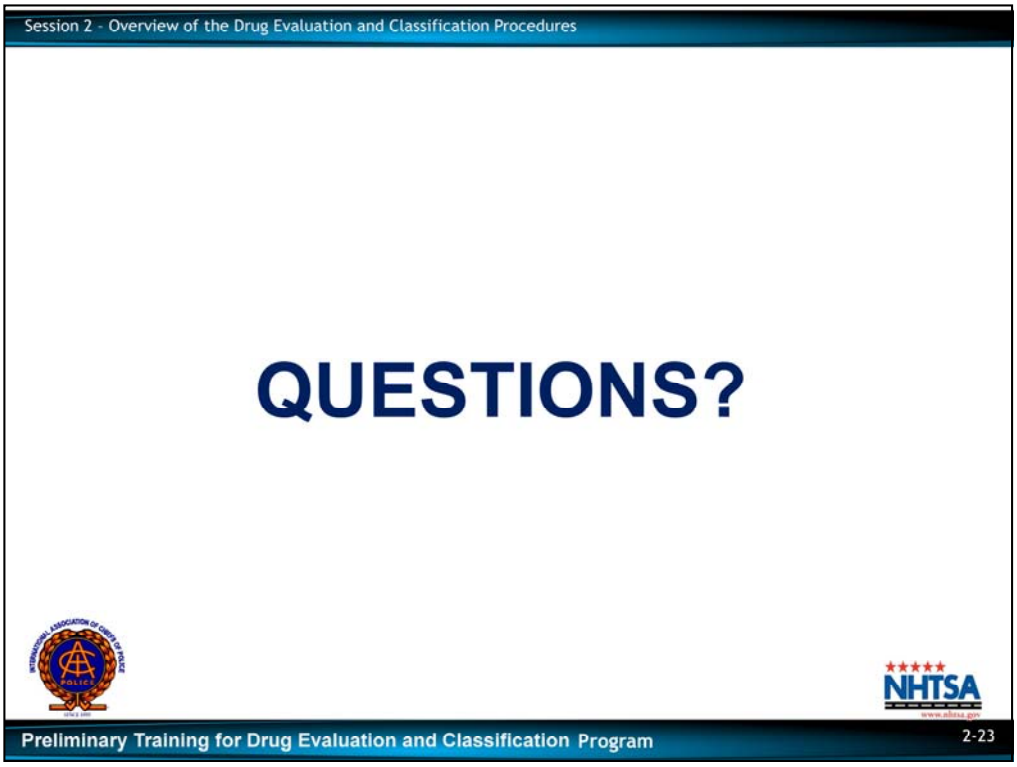
B. <u>Video Demonstrations</u>

Show the video of excerpts from the Drug Influence Evaluation Demonstration.

NOTE: This is the 25 minute video segment that is shown in Session V of the 7-Day DRE School.



Click video to begin playing Overview of the 12-Step DRE Process



Solicit participants' questions about the video demonstrations.

000074 # Drug Influence Evaluation Checklist

_____ 1. Breath Alcohol Test

_____ 2. Interview of Arresting Officer
(NOTE: Gloves must be worn from this point on)

_____ 3. Preliminary Examination
-first pulse, initial estimation of angle of onset, and initial estimation of pupil size

_____ 4. Eye Examination

_____ 5. Divided Attention Tests:

_____ *Romberg Balance*

_____ *Walk and Turn*

_____ *One Leg Stand*

_____ *Finger to Nose*

_____ 6. Vital signs and Second Pulse

_____ 7. Dark Room Check of Pupil Size and Ingestion Exam

_____ 8. Check of Muscle Tone

_____ 9. Check for Injection Sites and Third Pulse

_____ 10. Interrogation, Statements, and Other Observations

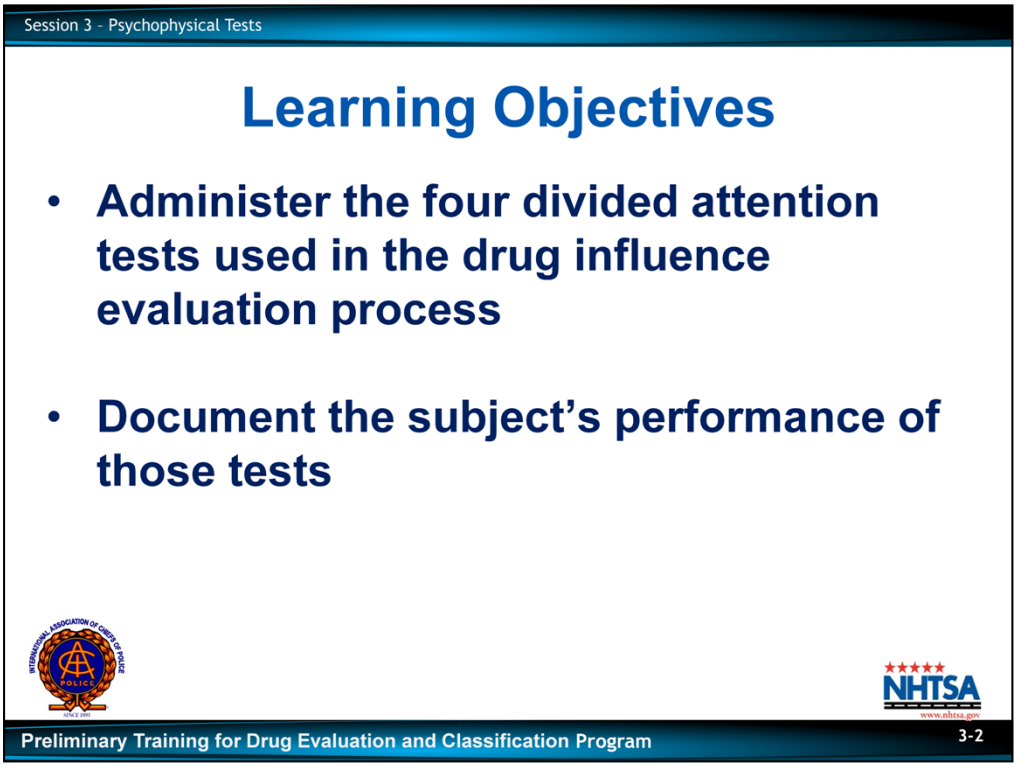
_____ 11. Opinion of Evaluator

_____ 12. Toxicological Examination

90 Minutes

Session 3

Psychophysical Tests



Briefly review the objectives, content and activities of this session.

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

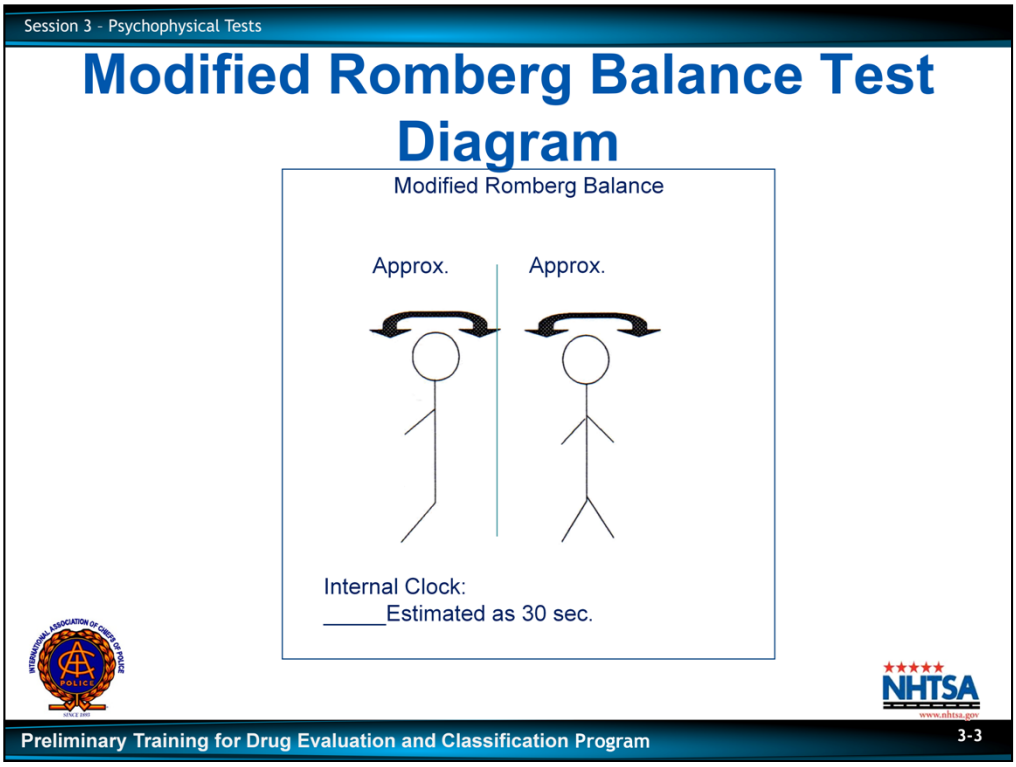
- Administer the four divided attention tests used in the drug influence evaluation process.
- Document the subject's performance of those tests.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Modified Romberg Balance	Instructor-Led Presentations
B. Walk and Turn	Participant-Led Demonstrations
C. One Leg Stand	Hands-on Practice
D. Finger to Nose	

- Four divided attention psychophysical tests are administered in the DRE evaluation – Modified Romberg Balance, Walk and Turn, One Leg Stand and Finger to Nose.
- The Walk and Turn and One Leg Stand as well as HGN have been scientifically validated by conducting controlled research to demonstrate their reliability. The Modified Romberg Balance and Finger to Nose have not been subjected to that sort of scrutiny, however, if properly administered and recorded they are very credible evidence of impairment.

Point out that throughout the evaluation process the evaluator must be cognizant of officer safety issues.

Officer survival procedures should be observed and adhered to during the administration of the DRE drug influence evaluation.



A. Modified Romberg Balance

Write "Modified Romberg Balance" on the dry erase board or flip-chart.

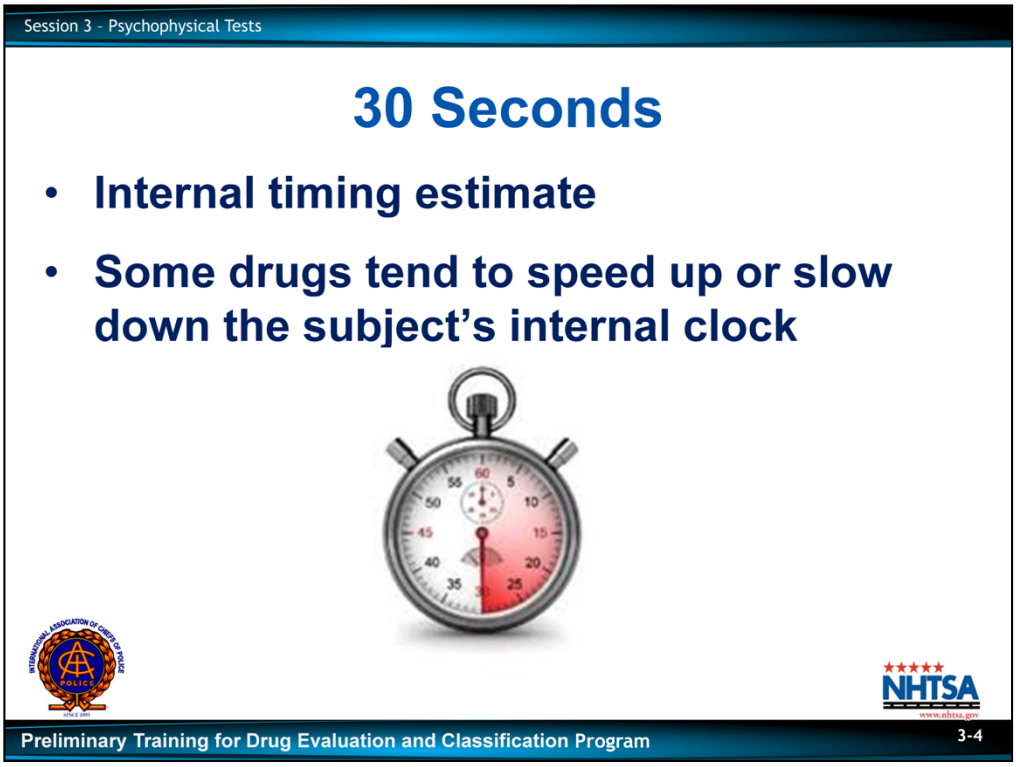
The Modified Romberg Balance is the first divided attention test that is administered during the drug influence evaluation.

Point out that the Modified Romberg Balance test used by DREs is a modified version of the original test developed in the 19th Century.

- The test requires the subject to stand with the feet together and the head tilted back slightly and with the eyes closed.

Demonstrate the stance required of the subject.

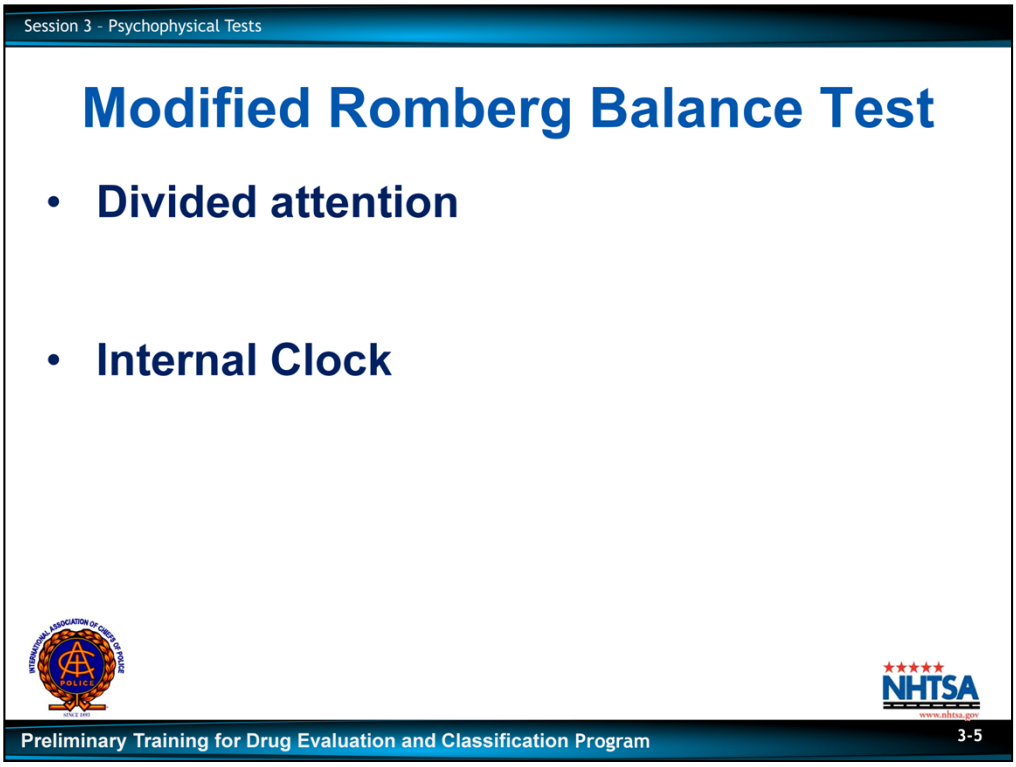
- The test also requires that the subject attempt to estimate 30 seconds; the subject must be instructed to open the eyes and tilt the head forward and say "stop" when they think thirty seconds has elapsed.



Emphasize that the DRE must not instruct the subject as to how they are to estimate the passage of 30 seconds.

Point out that some drugs tend to "speed up" the subject's internal clock, so that the subject may open the eyes after only 10 or 15 seconds have gone by. Other drugs may "slow down" the internal clock, so that the subject keeps the eyes closed for 60 or more seconds. And, sometimes the drugs confuse the subject to the point where they won't remember to open the eyes until instructed to do so by the DRE.

Point out that the DRE modified version of the original Modified Romberg Balance Test is a divided attention test as well as a possible measurement of the person's internal timing estimates.



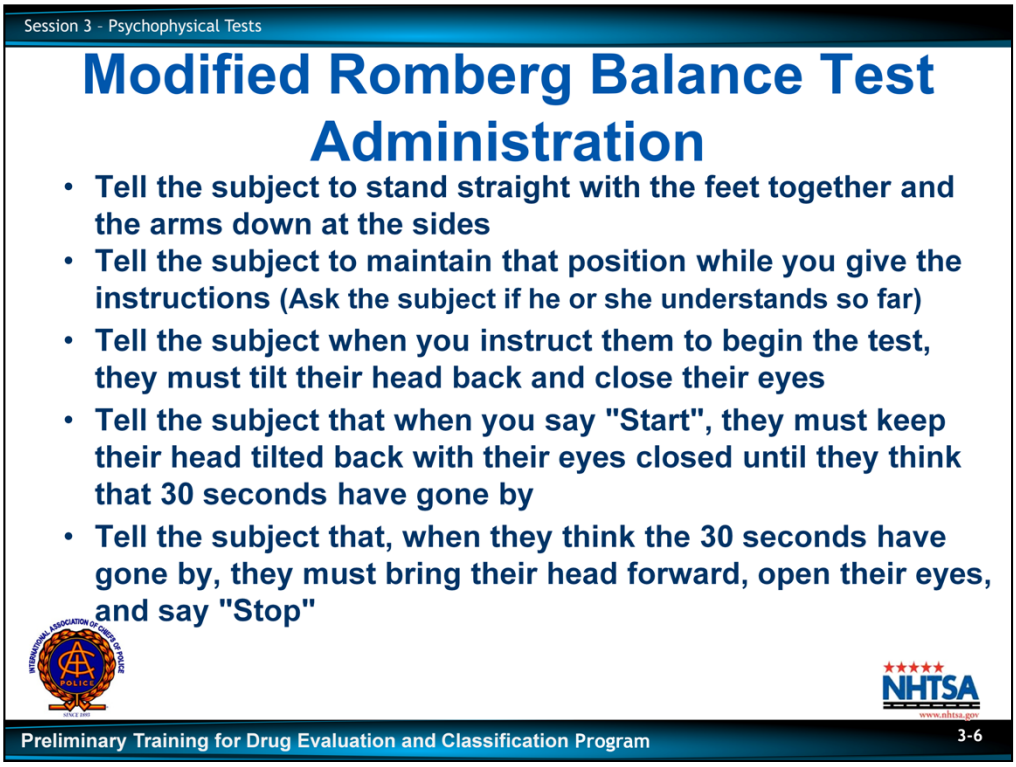
Point out that drug impairment can affect both divided attention and the internal clock and can vary among people. The use of the Modified Romberg Test internal clock to predict or relate to certain drug categories is not supported by research at this time. Performance outside the range of plus or minus 5 seconds must be used cautiously and considered with the totality of the decision process.

Emphasize that the DRE must look at a timing device as soon as the subject starts the test and must record the actual amount of time that passes by until the subject opens his or her eyes.

Point out that the DRE should not close their eyes while demonstrating this test for safety reasons. Emphasize this to the participants.

Two instructors should demonstrate the administrative procedures for Modified Romberg Balance. One instructor will play the role of the DRE, the other the "subject."

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

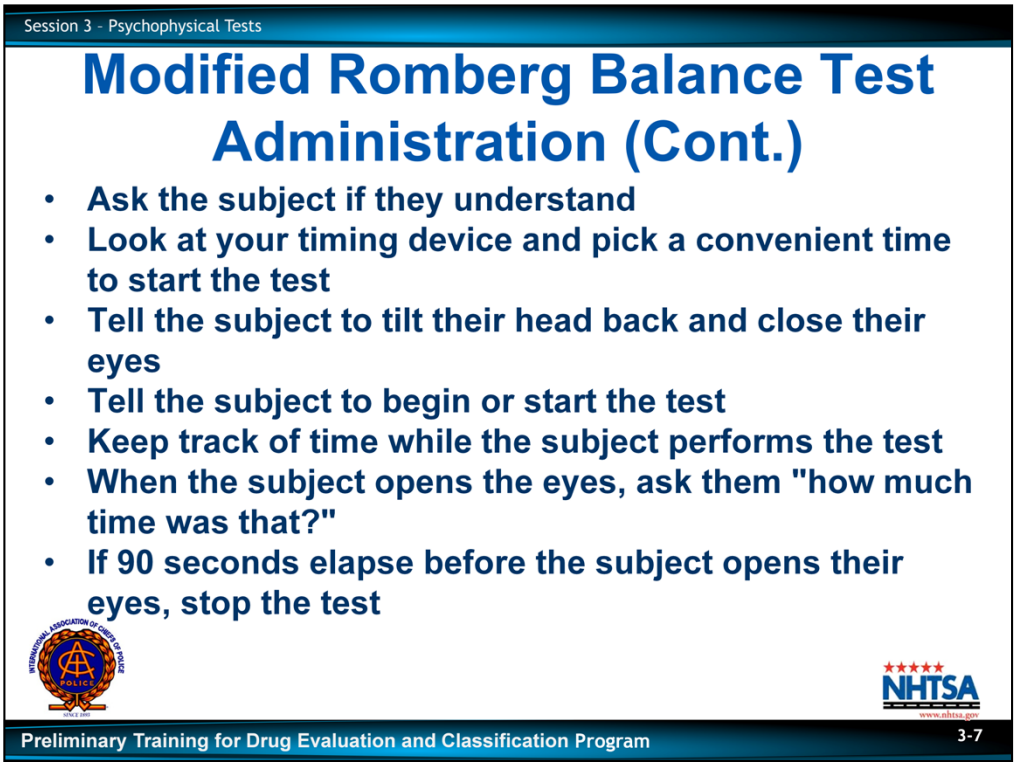


Administrative Procedures and Instructions

- Tell the subject to stand straight with the feet together and the arms down at the sides.
- Tell the subject to maintain that position while you give the instructions. Emphasize that he or she must not start the test until told to start.
- Ask the subject if he or she understands so far.
- Tell the subject when you instruct them to begin the test, they must tilt their head back and close their eyes.

DEMONSTRATE how the head should be tilted, but DO NOT CLOSE YOUR EYES while demonstrating.

- Tell the subject that when you say "Start", they must keep their head tilted back with their eyes closed until they think that 30 seconds have gone by. DO NOT tell the subject to "count to thirty seconds" or to use any other specific procedure to keep track of time. But on the other hand, DO NOT tell the subject that they are <u>not allowed</u> to count to thirty seconds. SIMPLY SAY, "keep your head tilted back with your eyes closed until you think that thirty seconds have gone by".
- Tell the subject that, when they think the 30 seconds have gone by, they must bring their head forward, open their eyes, and say "Stop".



- Ask the subject if they understand.
- Look at your timing device and pick a convenient time to start the test.
- Tell the subject to tilt their head back and close their eyes.
- Tell the subject to begin or start the test.
- Keep track of time while the subject performs the test.
- When the subject opens the eyes, ask them "how much time was that?"
- If 90 seconds elapse before the subject opens their eyes, stop the test.

Instructor-Led Demonstrations

One instructor should administer a complete Modified Romberg Balance test to another instructor.

- Instructor-to-instructor demonstrations.

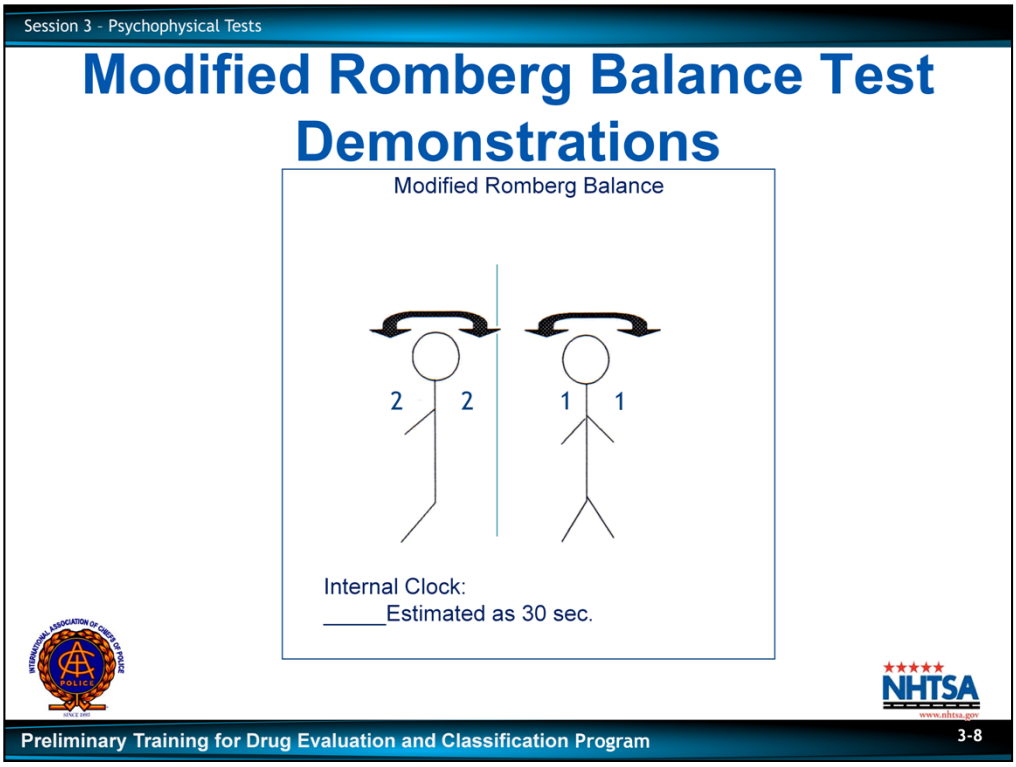
Solicit participants' questions.

- Instructor-to-participant demonstration.

Select a participant to participate in the demonstration.

The instructor should administer a complete Modified Romberg Balance test to the participant.

Thank the participant for his or her participation and solicit questions.



Participant-Led Demonstrations.

Select two participants to conduct demonstrations. Have the first participant administer the test to the second.

Offer constructive criticism, as appropriate, about the participant-administrator's demonstration.

Have the second participant administer the test to the first and offer appropriate constructive criticism.

Thank the participants for their participation and solicit questions.

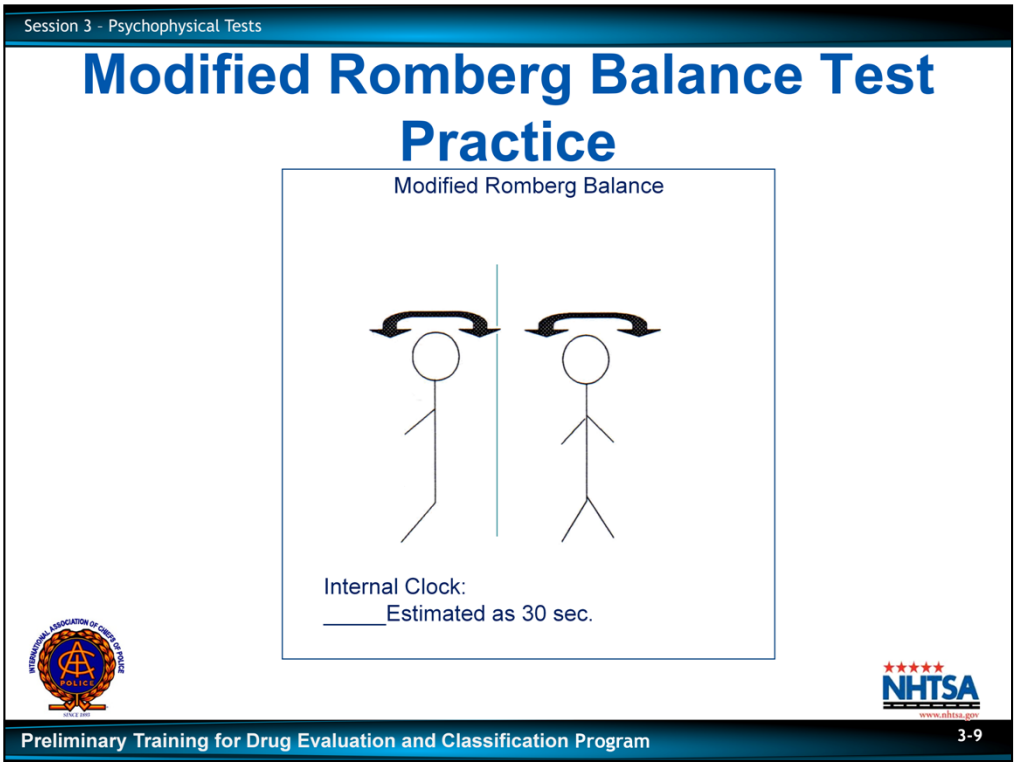
Recording Results of the Modified Romberg Balance Test

Instruct participants to turn to the "Modified Romberg Test Diagram" in their participant Manuals.

The major items that need to be recorded for the Modified Romberg Balance test are:

- The amount that the subject sways.
- The actual amount of time that the subject keeps the eyes closed.
- To record swaying, the DRE must estimate how many inches the subject sways, either front-to-back or left-to-right, or both.

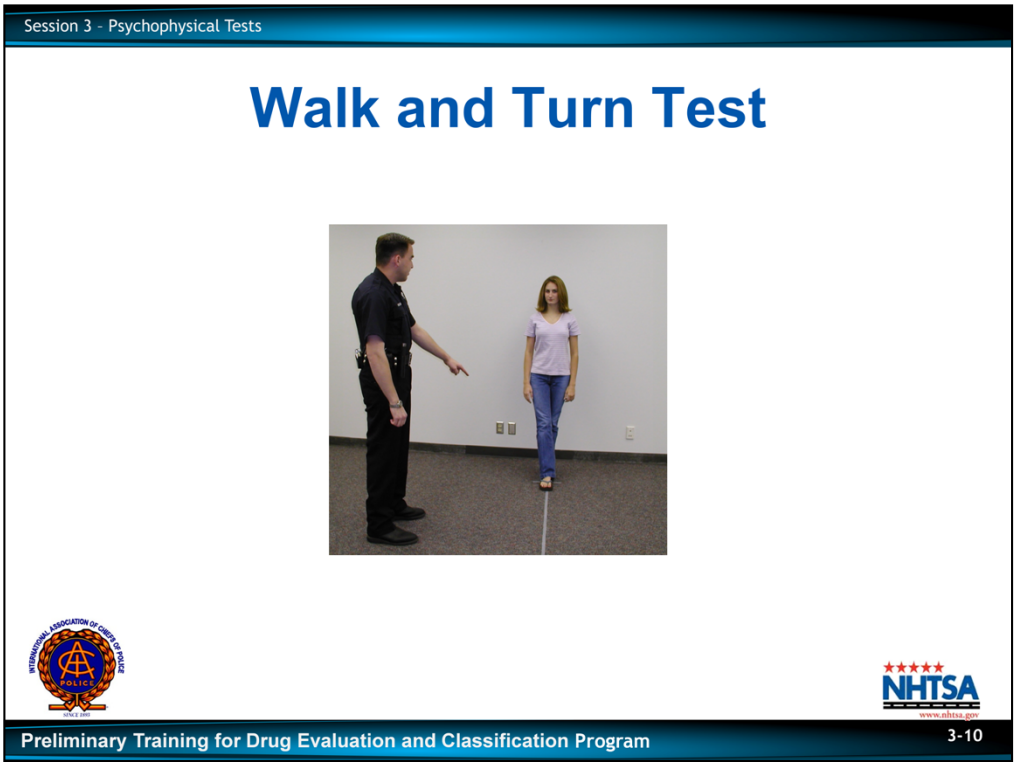
Example: If the subject sways approximately two inches toward the left and approximately two inches toward the right, the DRE should write the number "2" on each side of the "stick figure" that shows left-to-right movement. To record the subject's time estimate, simply write the number of seconds that the subject kept his or her eyes closed.



Solicit participants' questions.

Hands-On Practice

- ***Assign participants to work in pairs.***
- ***Instruct teammates to practice administering the Modified Romberg Balance test to each other.***



B. <u>Walk and Turn</u>

Write "Walk and Turn" on the dry erase board or flip-chart.

It is suggested a visible line be placed on the floor for use during the demonstration.

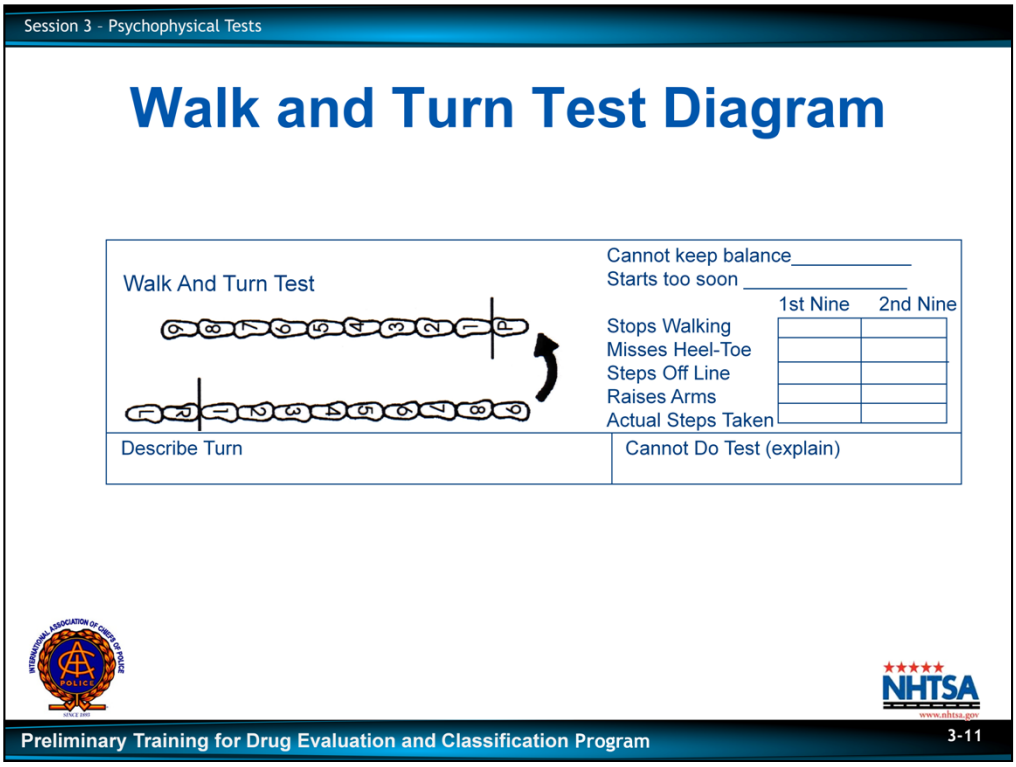
Walk and Turn is the second divided attention test administered during the drug influence evaluation.

The test is administered the same way that we have used it for Standardized Field Sobriety Testing purposes.

- Monitor the practice and offer coaching and constructive criticism, as appropriate.
- Review of Walk and Turn administrative procedures.

The test has two stages: the instructions stage and the walking stage.

- During the instructions stage the subject must stand heel-to-toe, with the right foot ahead of the left foot with the heel of the right foot against the toe of the left foot, and keeping the arms at the sides.
- Demonstrate the stance that the subject must maintain during the instructions stage. If the subject fails to maintain the starting position during your instructions, discontinue the instructions and direct the subject back to the starting position before continuing.
- The subject is told to not start walking until told to do so.
- The subject must be told to take nine heel-to-toe steps on the line, to turn around keeping the front or lead foot on the line and to turn by taking a series of small steps with the other foot, and to return nine heel-to-toe steps down the line.

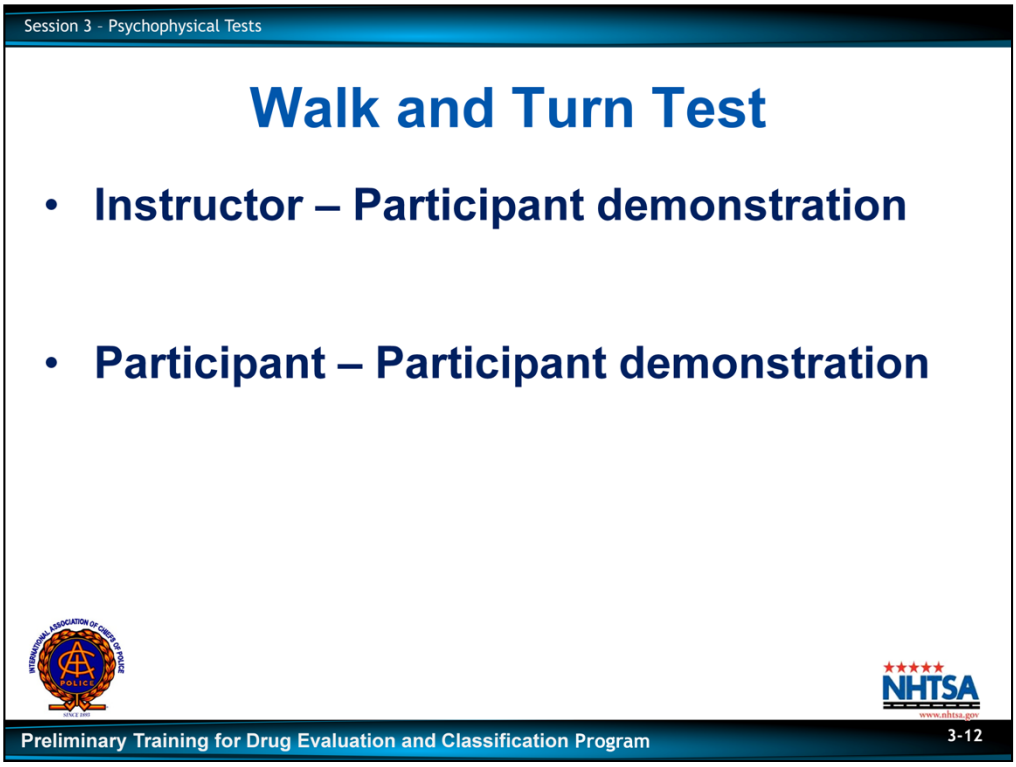


Demonstrate how the steps are taken, counting out loud and demonstrating the turn. Emphasize that the DRE should not turn his/her back to the subject for safety reasons.

You must demonstrate several heel-to-toe steps, and you must demonstrate the turn.

- The subject must be told to watch his or her feet while walking, and to count the steps out loud.
- The subject must be told to keep their arms at the sides at all times.
- The subject must be told not to stop walking until the test is completed.
- The subject should be asked if he/she understands the instructions.
- Once the subject acknowledges his/her understanding of the instructions, instruct the subject to begin the test.
- If the subject stops or fails to count out loud or watch his/her feet, remind him/her to perform these tasks. This interruption will not affect the validity of the test and is essential for evaluating divided attention.

Advise the participants that there may be instances when the subject may have to be reminded that the first step from the heel-to-toe position is step one.



The Walk and Turn procedures were revised to conform to SFST; these revisions were approved by the IACP Technical Advisory Panel (TAP), November 2008.

Demonstration of Walk and Turn

Select a participant to serve as the "subject."

Instructor-to-participant demonstration.

Instructor should administer a complete Walk and Turn test.

Thank the participant for his or her participation and solicit questions about test administrative procedures.

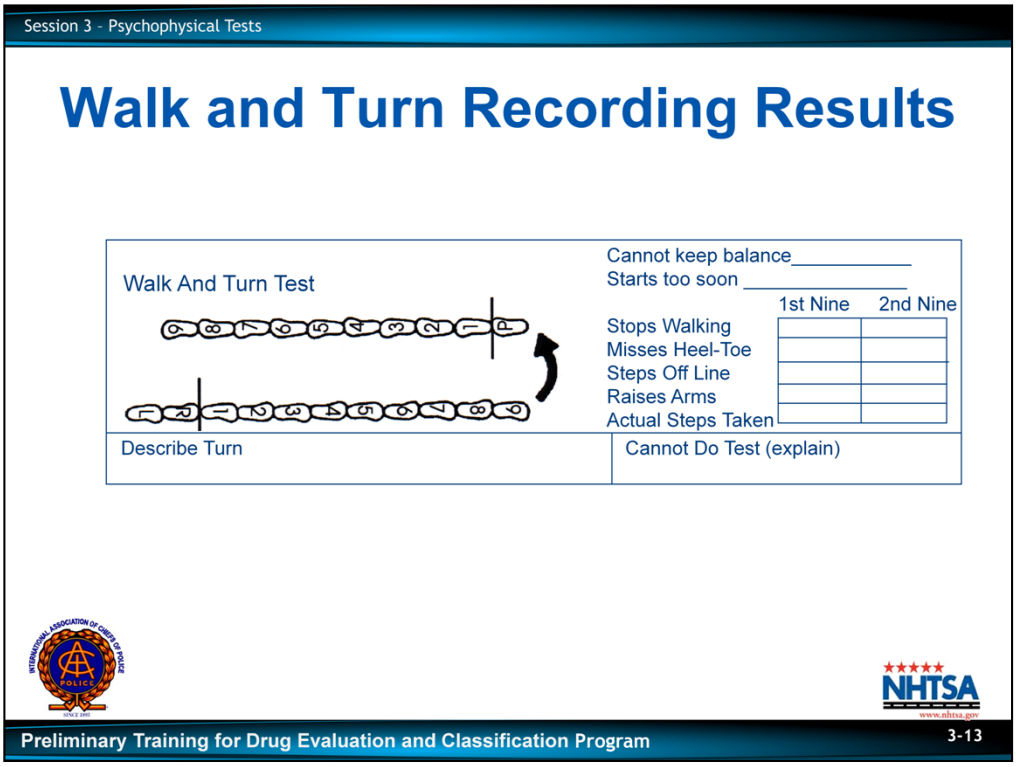
Participant-to-Participant Demonstration.

Select two participants to conduct a demonstration.

Have one participant administer a complete Walk and Turn test to the other.

Offer appropriate comments and constructive criticism about the test administration.

Thank the participants for their participation and solicit questions.



Recording Results of the Walk and Turn Test

Instruct participants to turn to the "Walk and Turn Test Diagram" in their Participant Manuals

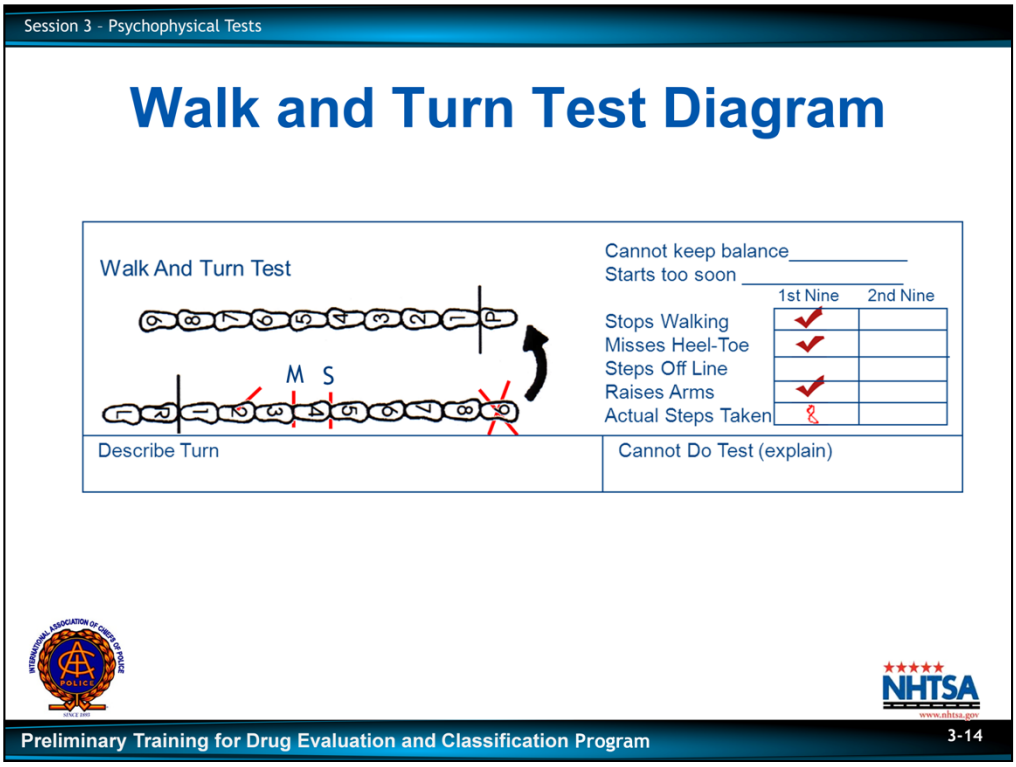
Ask participants: "What are the two clues that we might observe during the instructions stage of the Walk and Turn test?"

- We record the very same clues on this test that we use for Standardized Field Sobriety Testing purposes.

Instruction stage clues:

Draw a slash mark at an angle in the direction of where the subject stepped out of the instruction position.

- Cannot maintain balance while listening to instructions (feet break away from the heel-to-toe stance). Draw a slash mark at an angle in the direction the subject stepped out of the instruction position.
- Starts too soon (i.e., subject starts walking before told to do so).



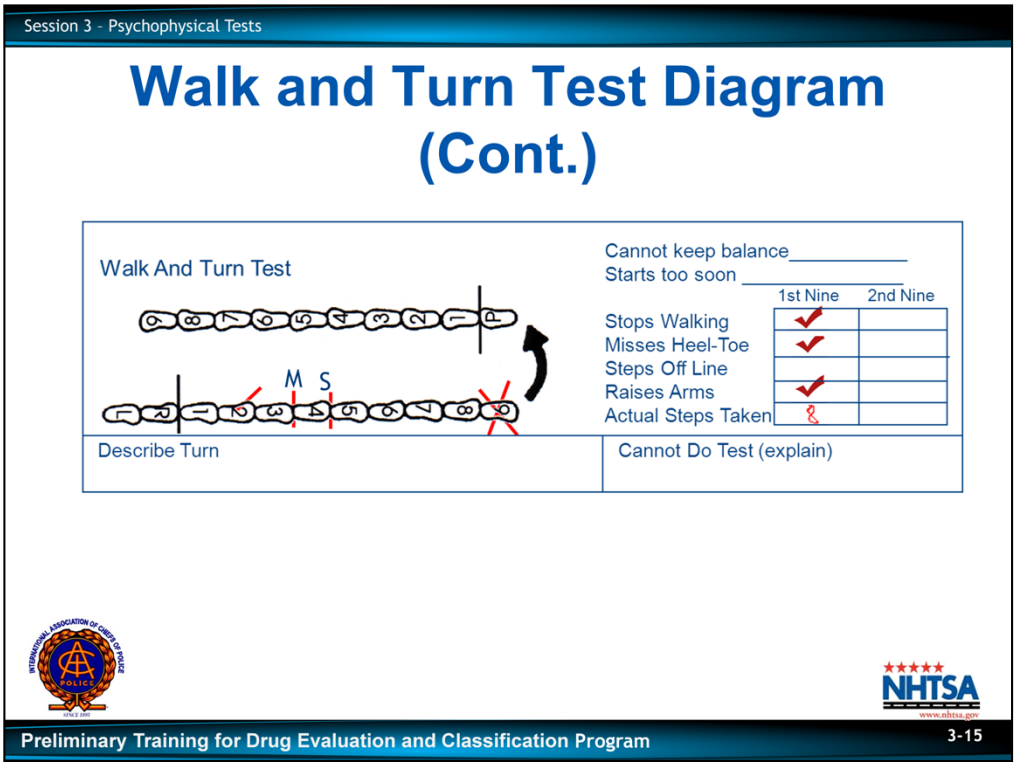
Walking stage clues:

Ask participants: "What are the six clues that we might observe during the walking stage?"

- Stops while walking
- Does not touch heel-to-toe (distance ½")
- Steps off the line
- Uses arms to balance (distance 6")
- Improper turn
- Incorrect number of steps

During the walking stage, clues should be marked in the following manner:

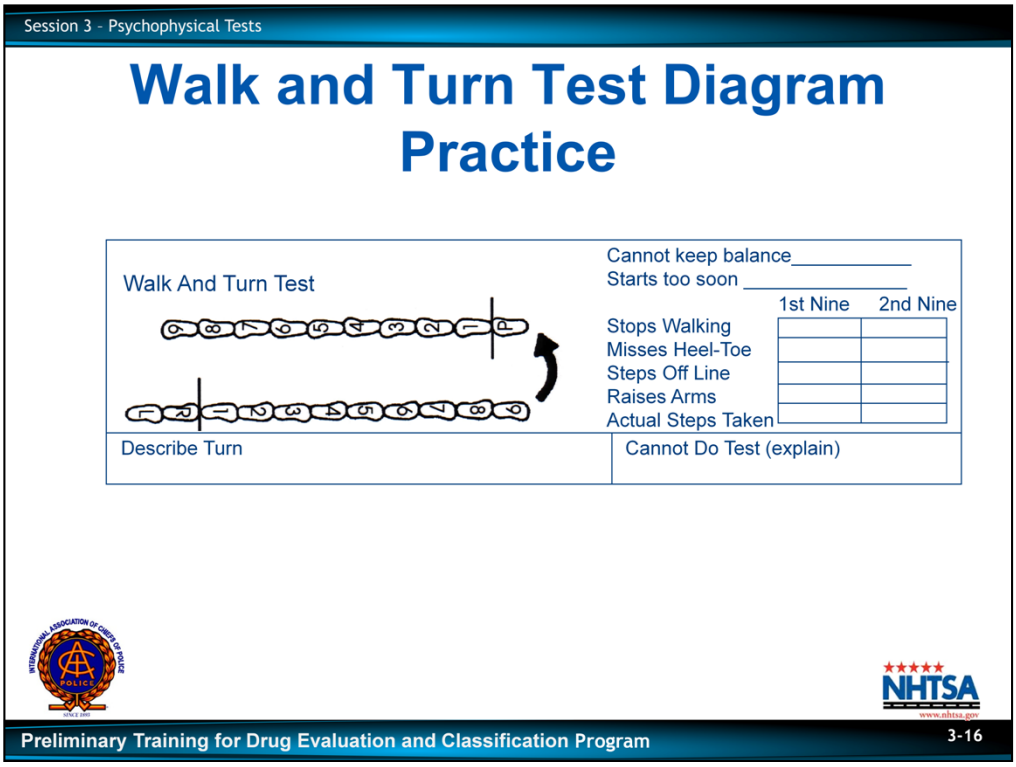
- On the lines indicate the number of times the clue occurred. Draw a slash mark at an angle in the direction the step was taken.
- Indicate by a check the number of times the subject stops, misses heel-to-toe, steps off line, or raises arms.
- Record the actual number of steps taken.
- If the subject stops walking a slash mark should cross between the feet and be labeled with an "S."
- The "S" indicates "stopped."



- If the subject steps off the line, indicate with a half of slash mark at an angle in the direction the step was taken.

- If the subject misses heel-to-toe, indicate with a slash mark between the feet and label with an “M.

- ”The “M” indicates “missed.”



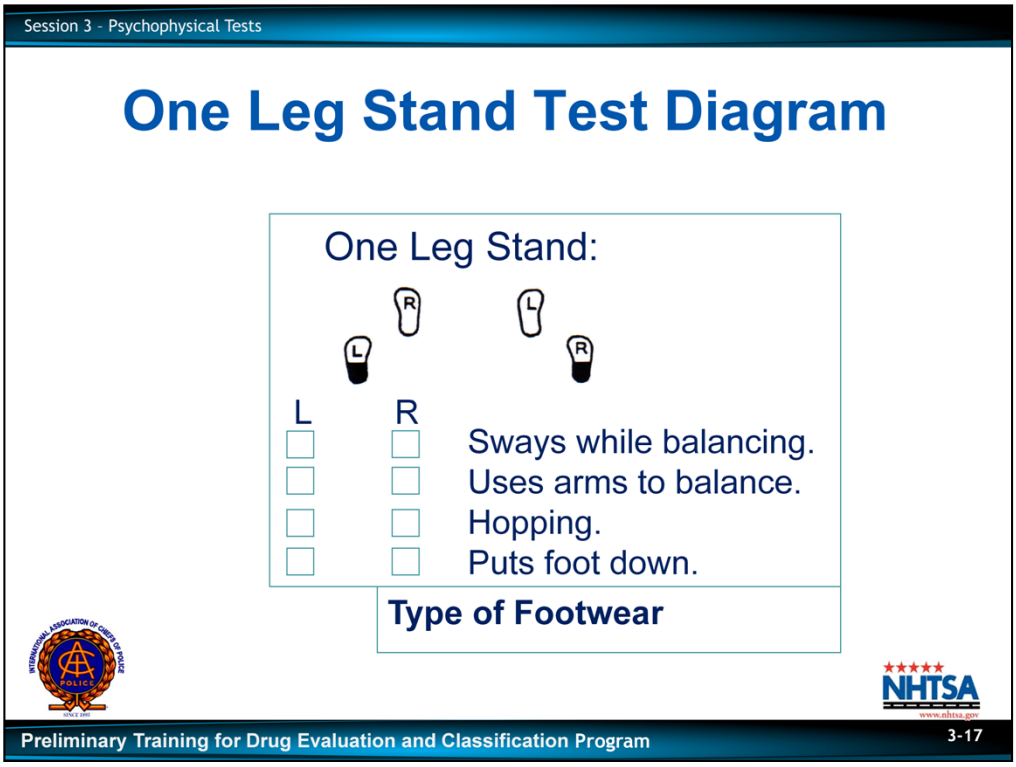
Hands-On Practice

- ***Assign participants to work in pairs. Instruct teammates to take turns administering the Walk and Turn test to each other.***

- ***Note: It is not necessary that the teammate playing the role of the "subject" actually carry out the walking stage of the test.***

- ***The idea is to take turns practicing the proper way to give instructions for the test.***

- ***Monitor the practice and offer coaching and constructive criticism, as appropriate.***



C. One Leg Stand

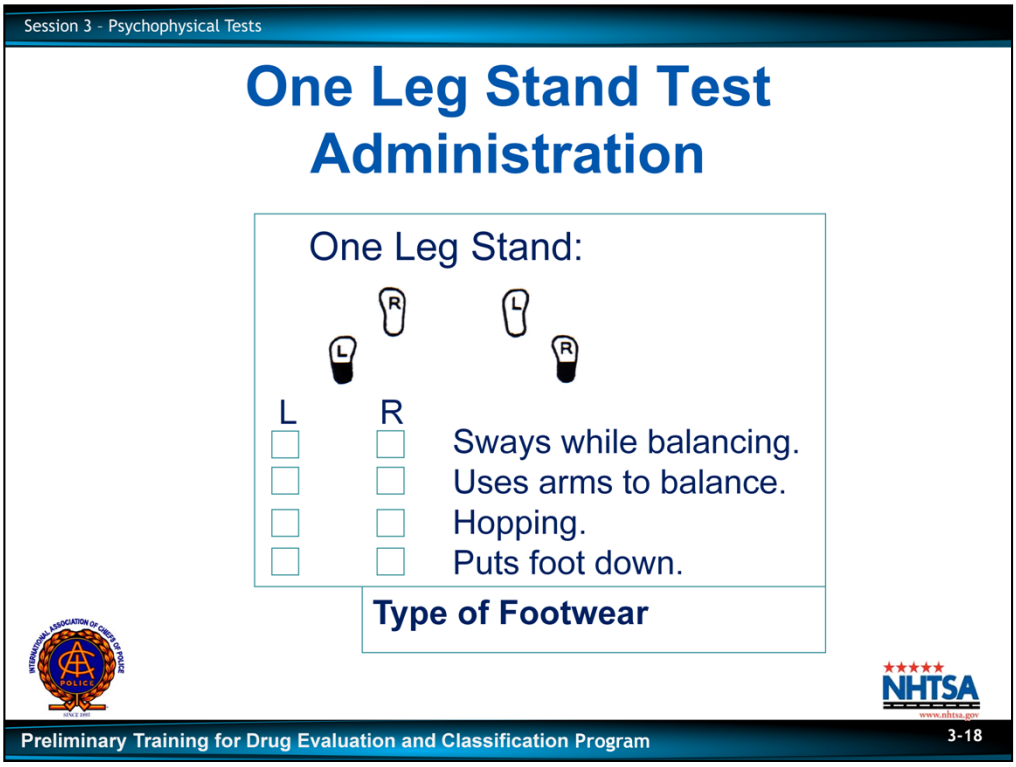
Write "One Leg Stand" on the dry erase board or flip-chart.

One Leg Stand is the third divided attention test administered during the drug influence evaluation.

- For drug evaluation purposes, One Leg Stand is given twice to the subject.
- First, the subject is required to perform the One Leg Stand while standing on the left foot.
- Note: The One Leg Stand is administered twice to test both the left and right legs to assist the DRE in making comparisons and identify potential medical conditions that may be present.

Write "given twice" on dry erase board or flip-chart

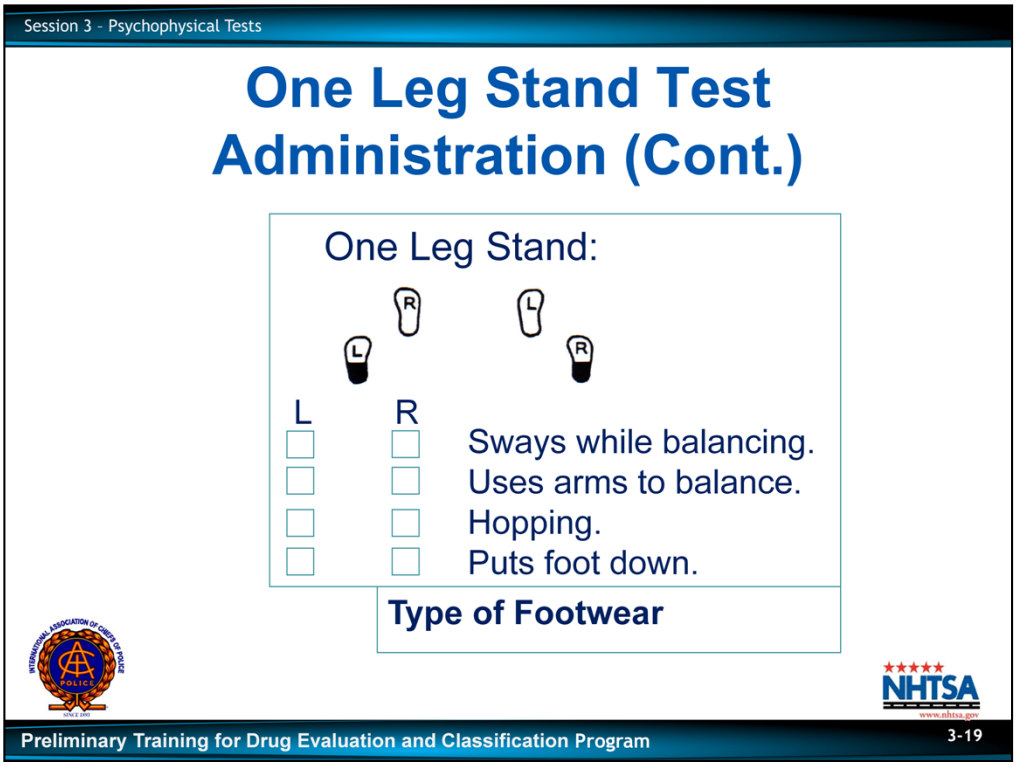
- Next, they are required to perform the test while standing on the right foot.
- Otherwise, One Leg Stand is used in the same fashion as in Standardized Field Sobriety Testing.



Review of One Leg Stand Administrative Procedures

Two instructors should be used for this demonstration, one as the “subject” and the other as the examiner.

- The test has two stages, the instructions stage and the balance and counting stage.
- During the instructions stage, the subject must stand with the feet together, arms at the side, facing the examiner.
- Demonstrate the stance that the “subject” is required to maintain.
- The subject must be told that they will have to 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 ground.
- The examiner must demonstrate the one-leg stance.
- Emphasize that the subject must maintain the foot elevation throughout the test.
- If the subject lowers his/her foot, he/she should be instructed to raise it.
- The subject must be told that they must look at the elevated foot during the test.
- Emphasize that the examiner should not look at his or her own foot while giving the instructions; for safety reasons, the examiner must keep the eyes on the subject at all times.

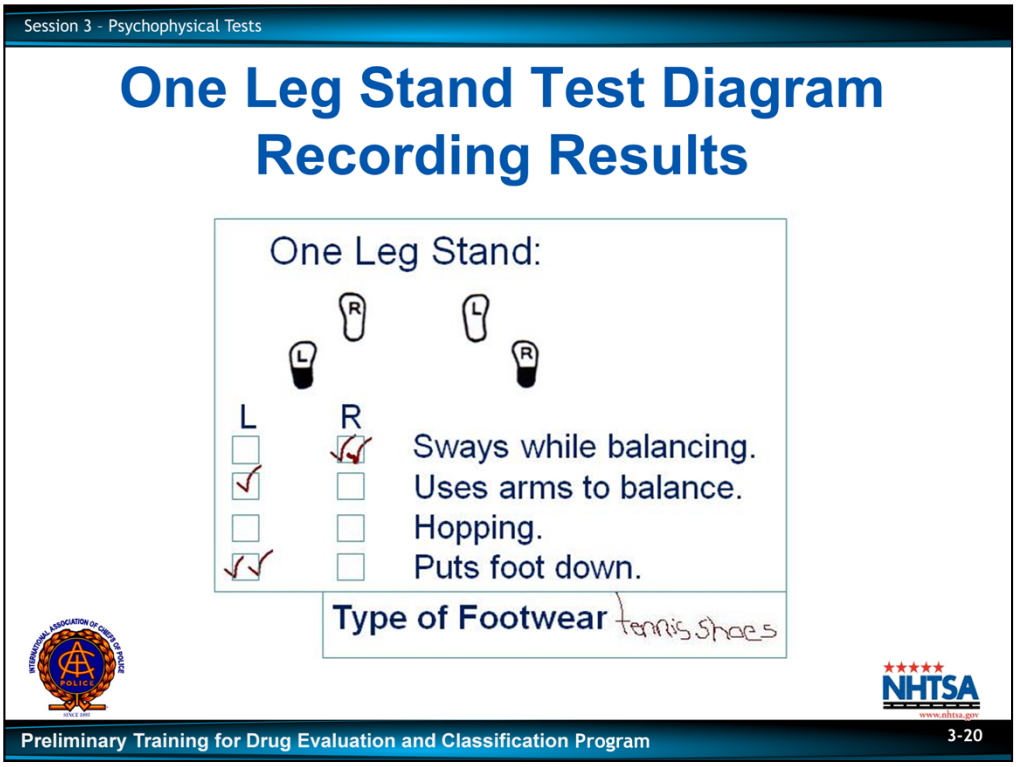


- The subject must be told that they will have to count out loud in the following manner: "one thousand one, one thousand two, one thousand three" and so on until told to stop.
- After giving the instructions, the examiner should ask the "subject" if they understand.
- Note: If the subject puts the foot down, remind the subject to pick the foot up again and continue counting from the point at which the foot touched.

Solicit participants' questions about the administrative procedures for One Leg Stand.

- ***Point out that the validation of the One Leg Stand was based on a thirty-second time period. Therefore, the DRE must keep track of the actual time the subject stands on each foot. When thirty seconds have passed, stop the test.***
- After the subject has completed the test on the left foot, they must be told to repeat the test on the right foot.

- ***Point out that the DRE should explain the instructions again prior to having the "subject" perform the test on the right foot.***



Recording Results of the One Leg Stand

Instruct participants to turn to the "One Leg Stand Test Diagram" in their participant Manuals

Ask participants: "What are the four clues of the One Leg Stand test?"

For drug evaluation purposes, we use the same clues on the One Leg Stand that we use for Standardized Field Sobriety Testing.

The One Leg Stand clues:

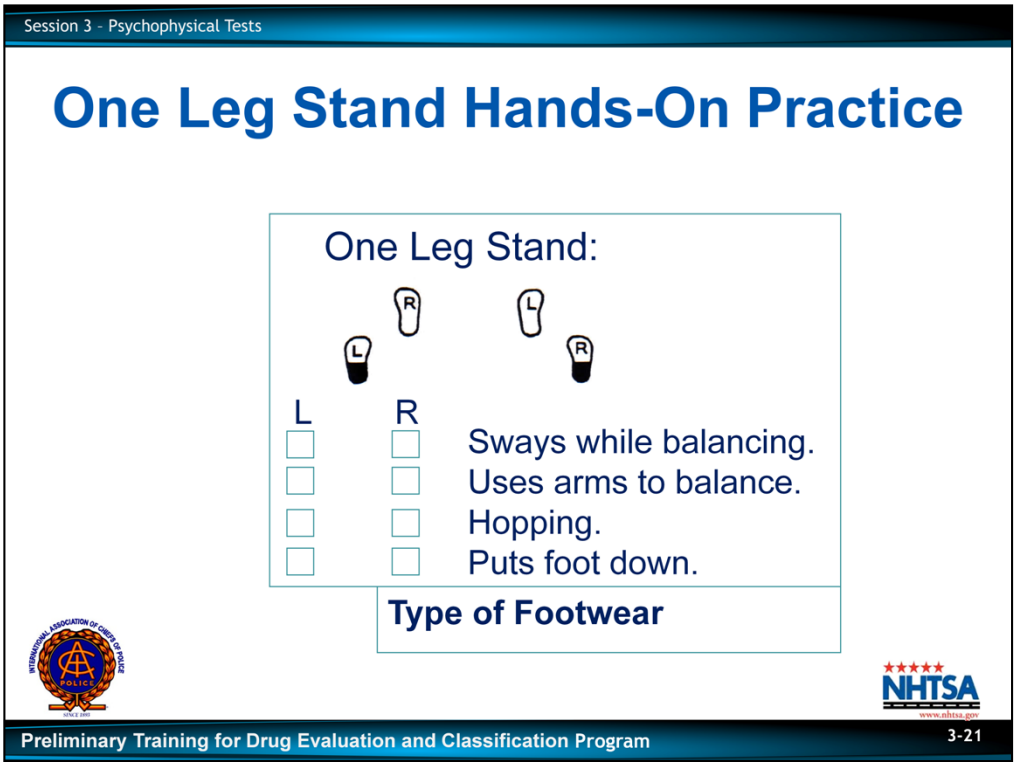
- Sways while balancing
- Uses arms to balance
- Hopping
- Puts foot down

Indicate above the feet the number they were counting when they put their foot down.

Check marks should be made to indicate the number of times the subject swayed, used arms for balance, hopped or put their foot down.

The subject's actual count during the 30 seconds should be documented in the top area of the box above the foot on which the subject was standing.

Solicit questions about documenting the results of the One Leg Stand.

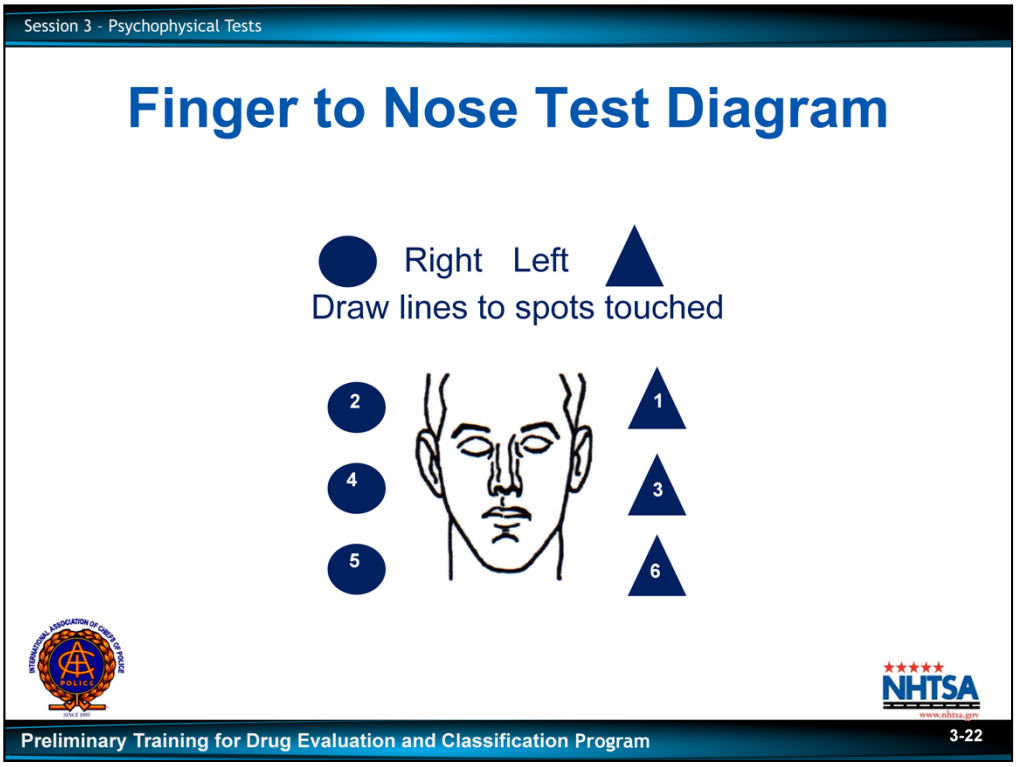


Hands-On Practice

Assign participants to work in pairs.

Instruct teammates to take turns administering the One Leg Stand to each other.

Note: It is not necessary that the participant serving as the "subject" actually stand on one foot for thirty seconds. The idea is to practice giving the instructions for the test. Monitor the practice and offer appropriate coaching and constructive criticism.

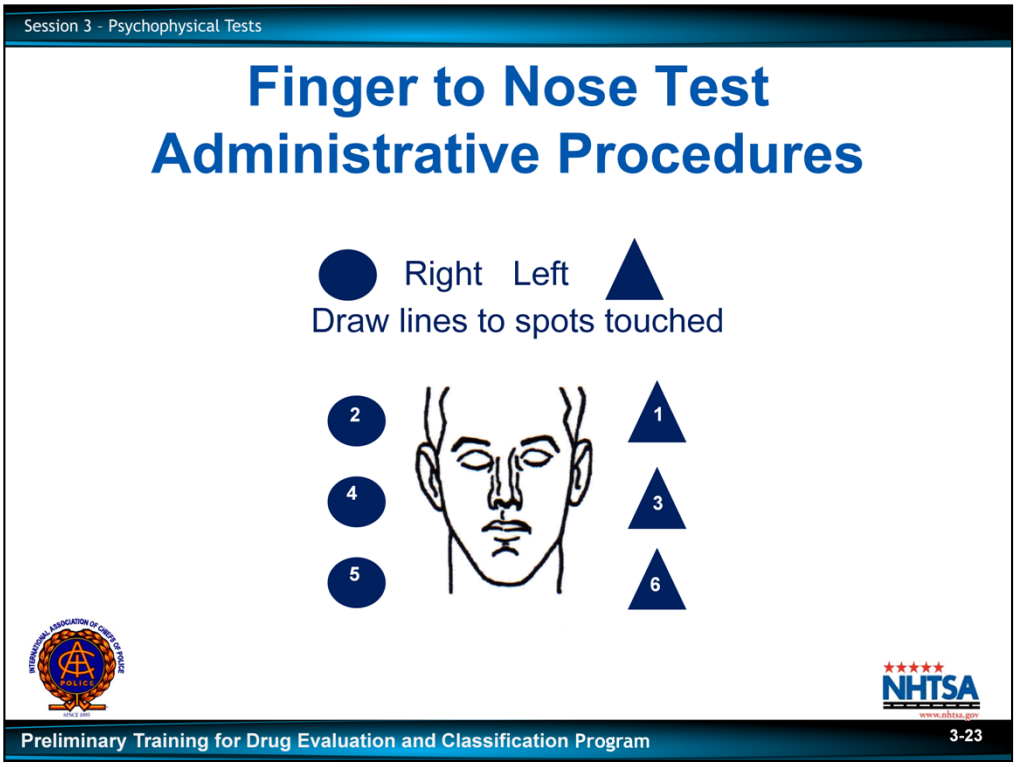


Write "Finger to Nose" on dry erase board or flip-chart.

D. Finger to Nose

The Finger to Nose is the final divided attention test used in the drug influence evaluation.

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



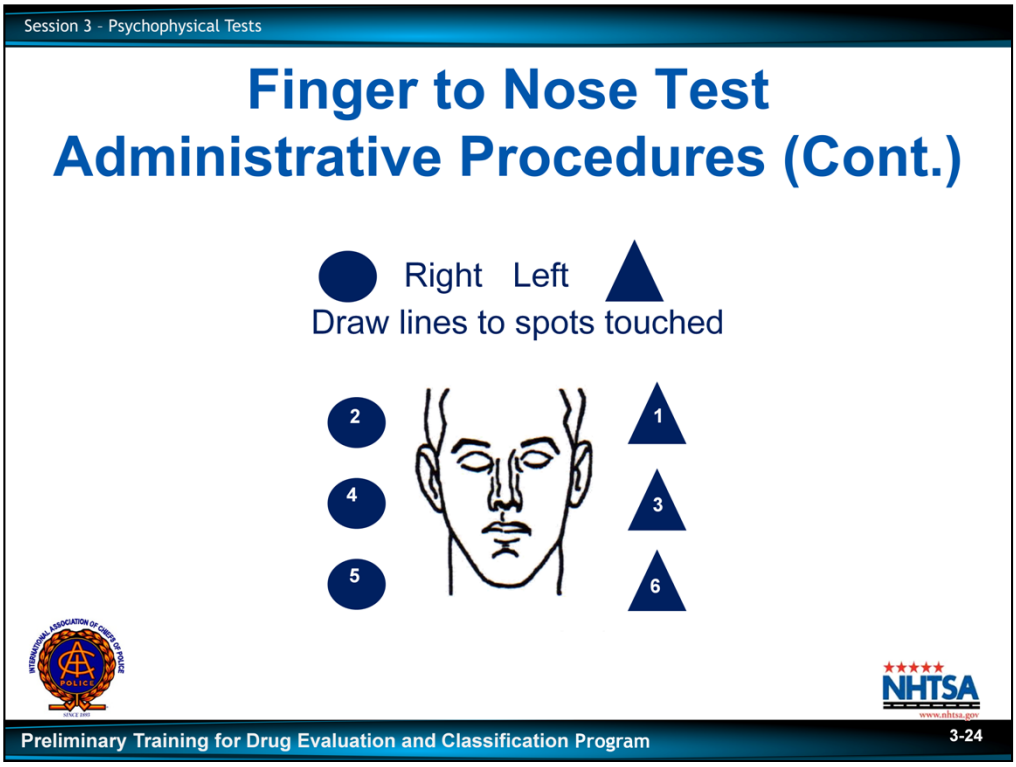
Administrative Procedures for Finger to Nose

Two instructors should serve in this demonstration, one as the examiner and the other as the "subject."

- The subject must be told that 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 examiner 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.

Demonstrate the proper extension of the index fingers.

- The examiner must tell subject that they will be asked to touch the tip of the index finger to the tip of the nose.
- The examiner must demonstrate to the subject how they are expected to touch the fingertip to the nose. (Without actually touching the nose.)

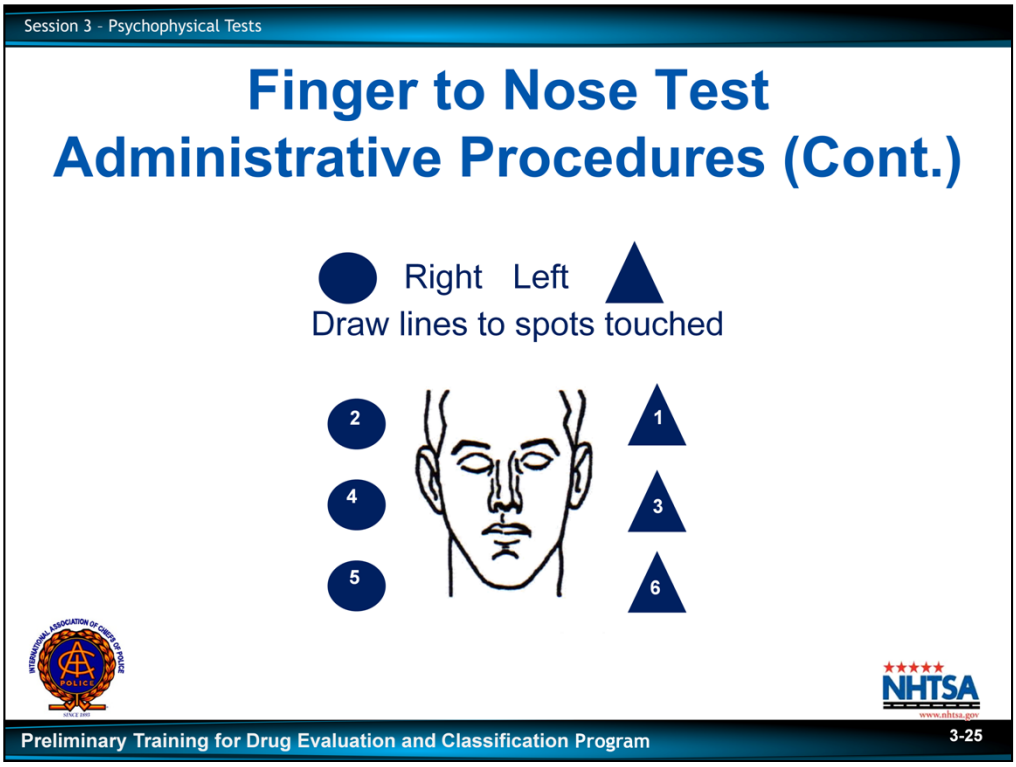


- Demonstrate: “When I say ‘left,’ touch the tip of your left index finger to the tip of your nose.
- The examiner must tell the subject that they are expected to return the arm to the side immediately after touching the fingertip to the nose.
- Demonstrate the movement of the fingertip to the nose by standing at an angle to the “subject” so that 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 examiner says to open them.
- Note: The subject’s head should be tilted back in the same fashion as in the Modified Romberg Balance test.
- The examiner should demonstrate the stance with head tilted back, arms at the sides with index fingers extended. Remind the participants that they should not close their eyes during the instructions for safety reasons.

The test is always given in the following sequence of commands: Write the sequence on the dry erase board or flip-chart.

Left, Right, Left, Right, Right, Left

Solicit participants’ questions concerning administrative procedures for Finger to Nose.



Instructor-Led Demonstrations

- ***One instructor should give a complete demonstration of Finger to Nose, using another instructor as the "subject."***
- Instructor-to-instructor demonstration.
- Instructor-to-participant demonstration.

Select a participant to serve as the "subject" and administer a complete Finger to Nose test to that participant.

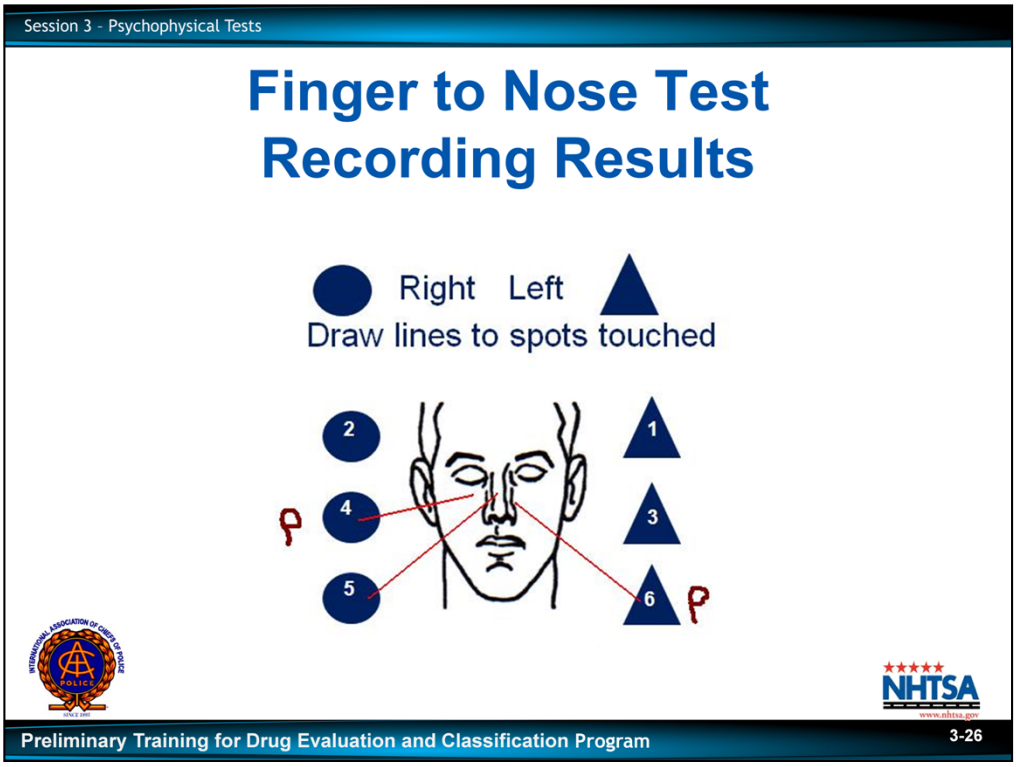
Thank the participant for his/her participation and solicit questions about the demonstrations.

Participant-Led Demonstrations

Select two participants and have them take turns administering Finger to Nose tests to each other.

Offer appropriate comments and constructive criticisms about the participants' administration of the test.

Thank the participants for their participation and solicit questions from the class.



Recording Results of the Finger to Nose Test

Instruct participants to turn to the "Finger to Nose Test Diagram" in their participant Manuals.

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

Instruct students a "P" is an indicator that the subject touched with the pad of his/her finger instead of the finger tip.

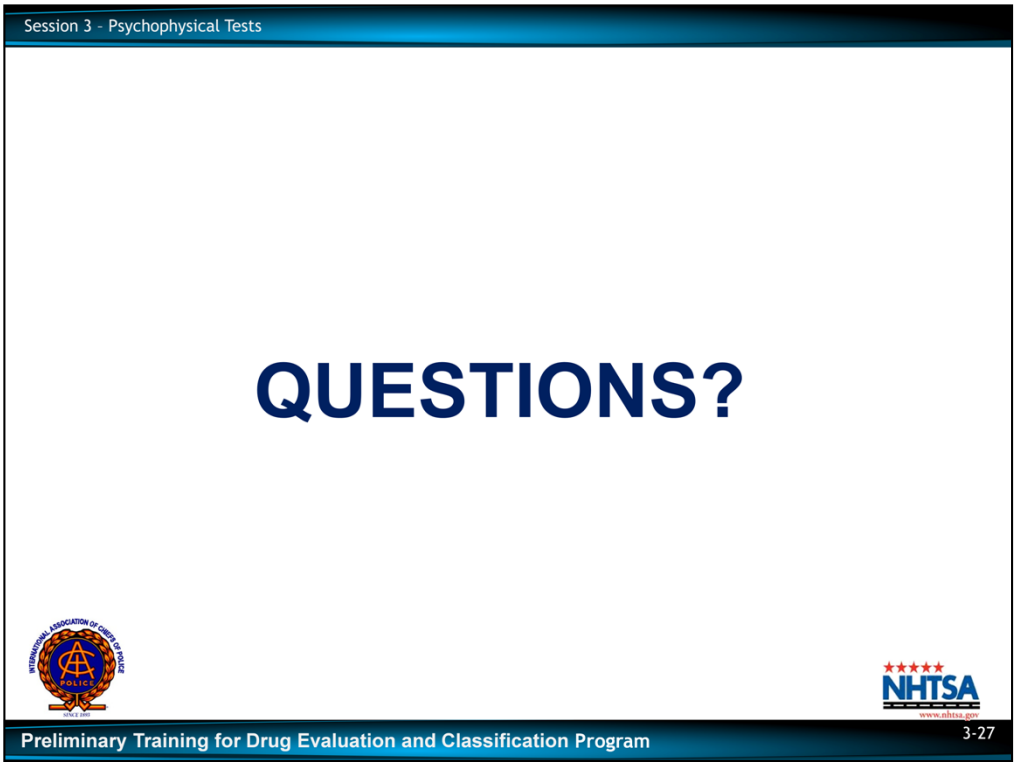
Solicit questions about recording the results of Finger to Nose.

Hands-on Practice

Assign participants to work in pairs. Instruct teammates to take turns administering Finger to Nose tests to each other.

It is not necessary for the teammate who is the "subject" to carry out the test completely.

Monitor the practice and offer appropriate coaching and constructive criticism.

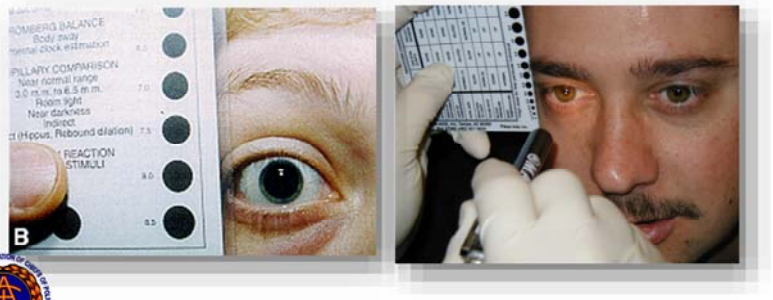


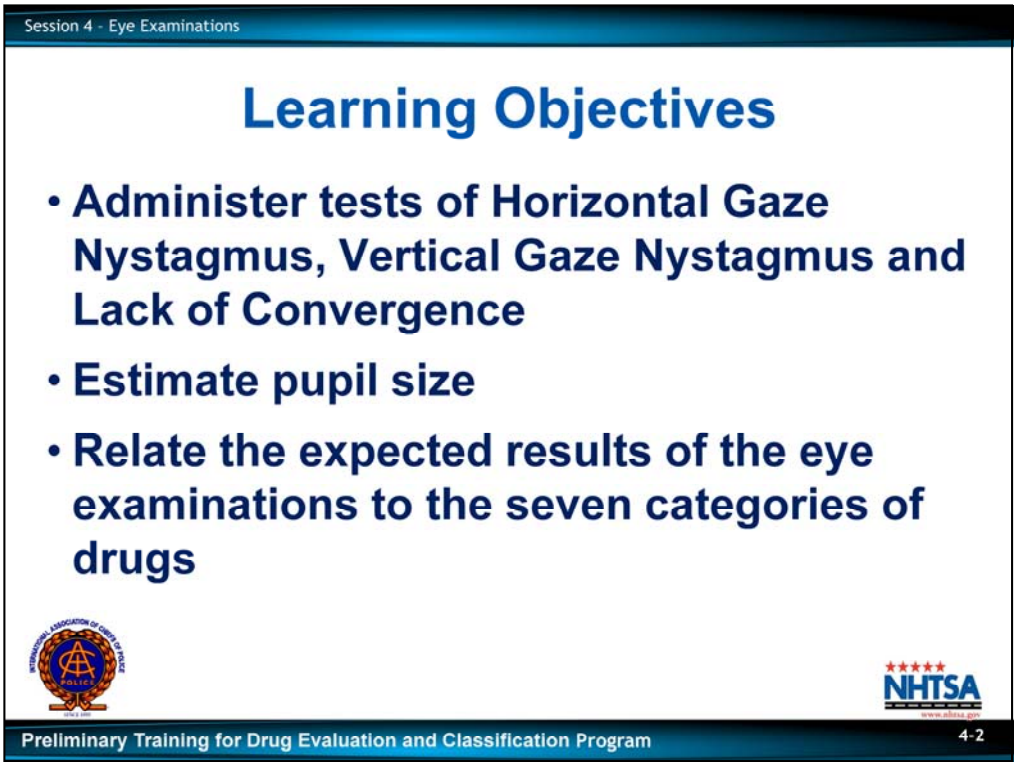
Solicit participants' questions about Psychophysical Tests.

90 Minutes

Session 4

The Eye Examinations





Briefly review the objectives, content and activities of this session.

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

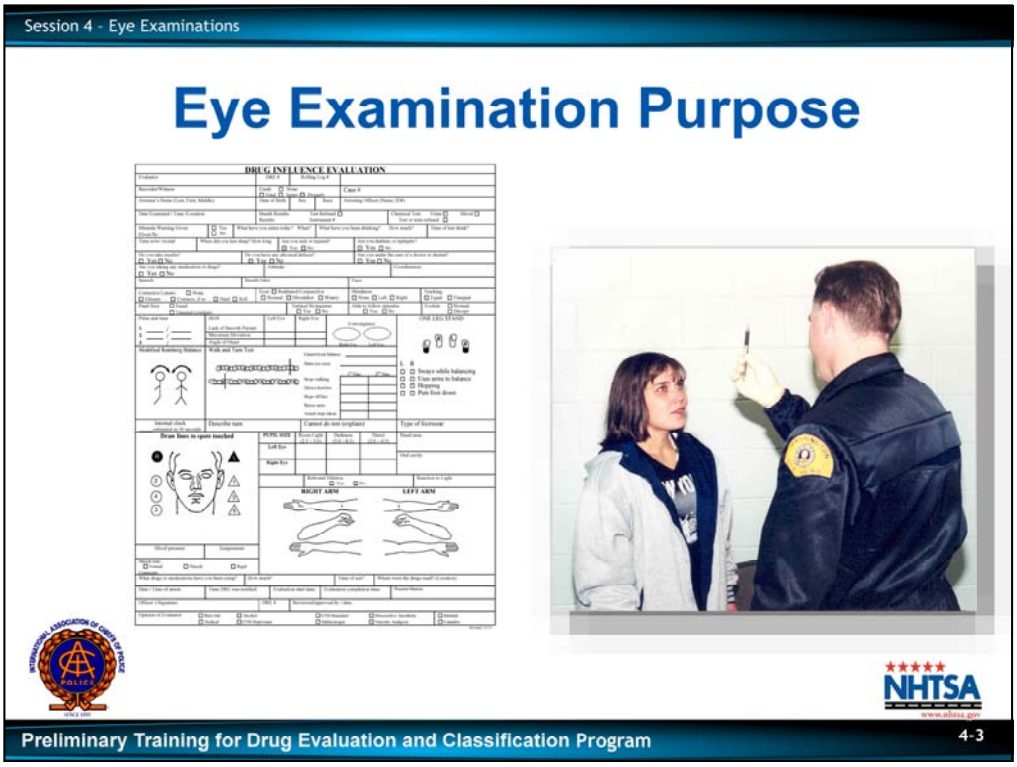
- Administer tests of Horizontal Gaze Nystagmus, Vertical Gaze Nystagmus and Lack of Convergence.
- Estimate pupil size.
- Relate the expected results of the eye examinations to the seven categories of drugs.

CONTENT SEGMENTS

A. Purposes of the Eye Examinations
B. Procedures and Clues
C. Demonstrations
D. Relationship of Drug Categories to the Eye Examinations

LEARNING ACTIVITIES

Instructor-Led Presentations
Instructor-Led Demonstrations
Hands-on Practice

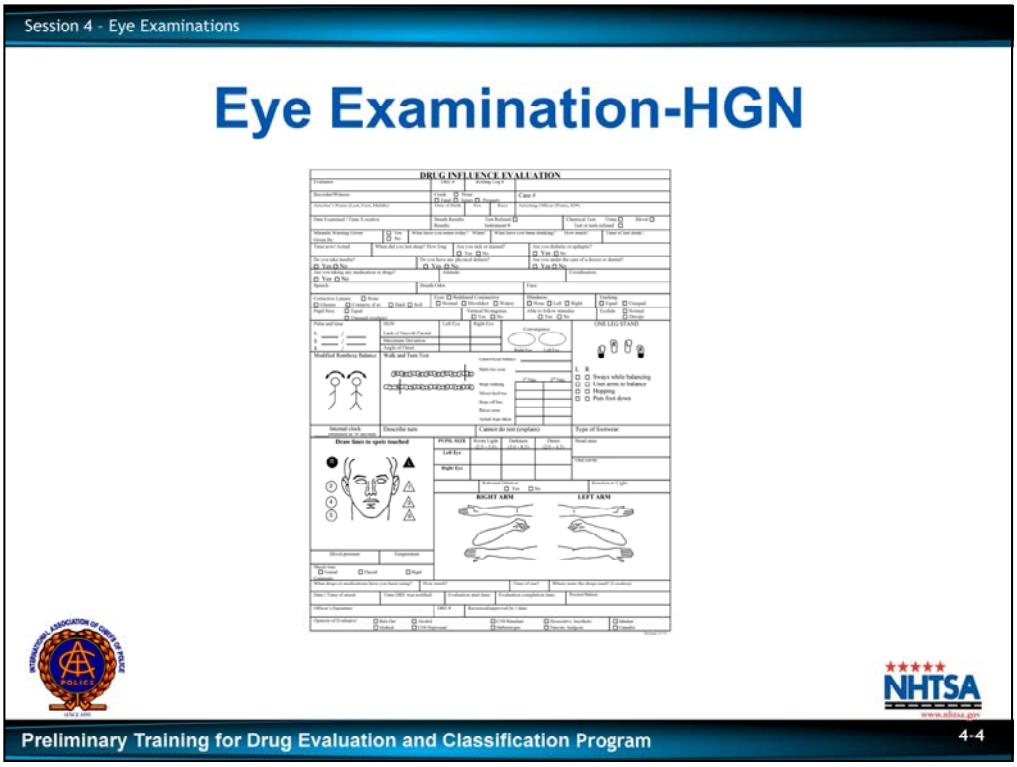


A. Purposes of the Eye Examinations

The principal purpose of all of the eye examinations is to obtain articulable facts indicating the presence or absence of specific categories of drugs.

- Certain drug categories usually cause the eyes to react in specific ways.

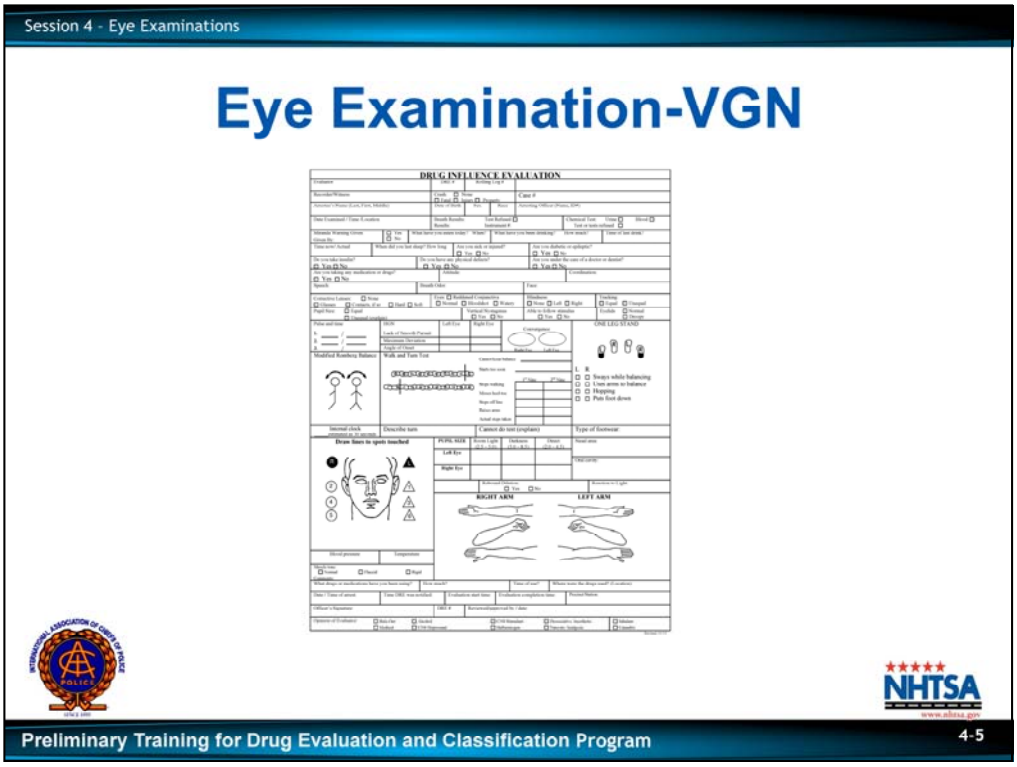
- Other drug categories usually do not cause those reactions.



Horizontal Gaze Nystagmus (HGN)

The tests of Horizontal Gaze Nystagmus (HGN) and Vertical Gaze Nystagmus (VGN) provide important indicators of the drug categories that may or may not be present.

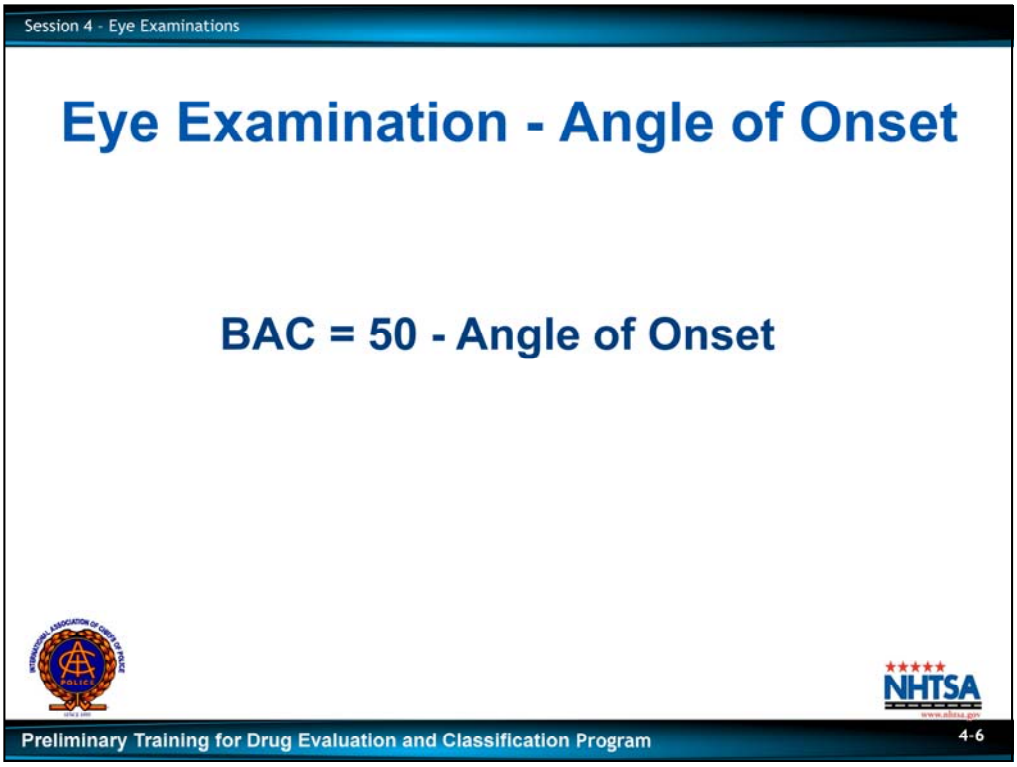
- Prior to the administration of the HGN, the subject's eyes should be checked for equal pupil size, resting nystagmus and equal tracking.
- The check for equal pupil size is simply done by visibly checking to see if both pupils are equal in size. If they are not, this may be an indicator of a head injury or other medical conditions.
- The check for equal tracking is done by moving the stimulus smoothly across the subject's entire field of vision checking to see if the eyes track together or if one lags behind.
- If the subject's pupils are noticeably unequal in size or if resting nystagmus is present or if the eyes do not track together, there may be a chance of a medical condition or pathological disorder.
- This part of the examination may require more than one check to ensure that a medical condition or pathological disorder does not exist.
- If HGN is observed, it is likely that the subject may have taken a CNS Depressant, Dissociative Anesthetic, an Inhalant, or a combination of those.



Vertical Gaze Nystagmus (VGN)

- If VGN if observed, the implication may be that the subject took Dissociative Anesthetics, or fairly large doses of depressants or inhalants (for that individual).
- Point out that it is very unlikely that a subject would exhibit Vertical Gaze Nystagmus without also exhibiting HGN.
- By comparing the subject's blood alcohol concentration with the angle of onset of HGN, it may be possible to determine that alcohol is or is not the sole cause of the observed nystagmus.

Clarification: If the angle of onset is significantly inconsistent with BAC, the implication may be that the subject has also taken a Dissociative Anesthetic or an Inhalant, or some CNS Depressant other than alcohol, or that the subject may have a medical condition.



Angle of Onset

Write the formula on the dry erase board of flip-chart.

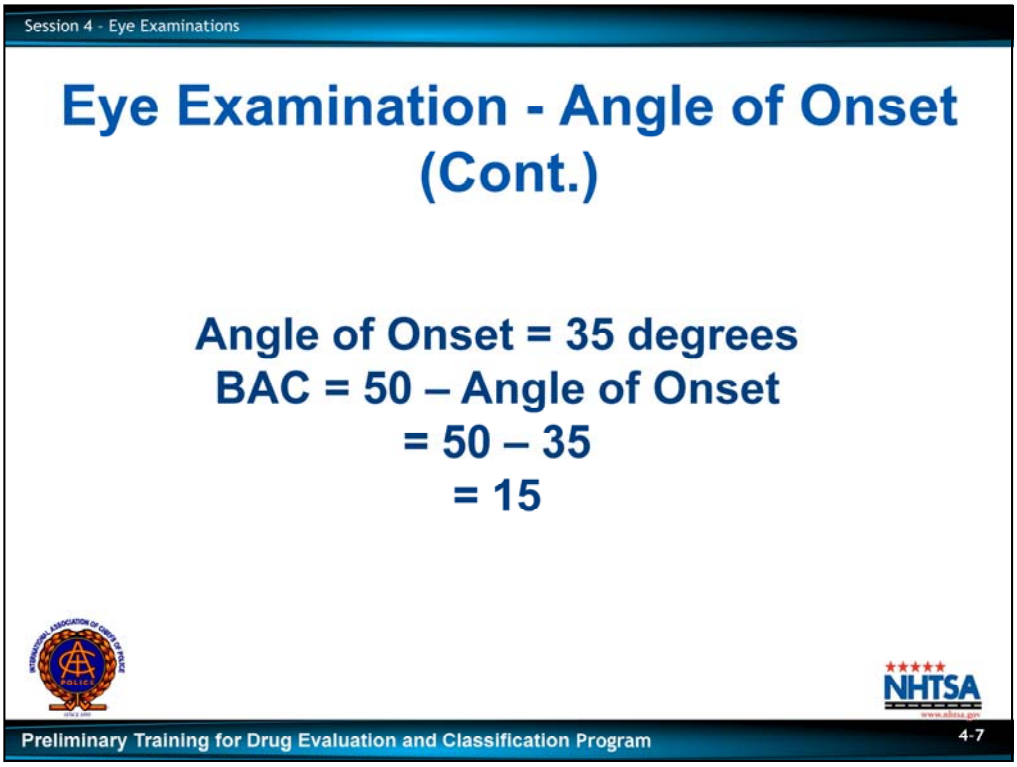
The consistency of onset angle and BAC can be compared using the following formula:

- Explanation: BAC = 100 x blood alcohol (e.g., if blood alcohol is 0.10, BAC = 10).
- Example: If onset angle is 35 degrees, then BAC = 50 - 35 = 15.
- The corresponding blood alcohol concentration would be approximately 0.15.
- Keep in mind that this formula is only a statistical approximation. It is not an exact relationship for all subjects at all times.

Emphasize this point: The formula can easily be "off" by 0.05 or more, even though the subject has consumed no drug other than alcohol.

- The only purpose of comparing BAC and the angle of onset is to obtain a gross indication of the possible presence of another Depressant, Inhalant, or Dissociative Anesthetic.

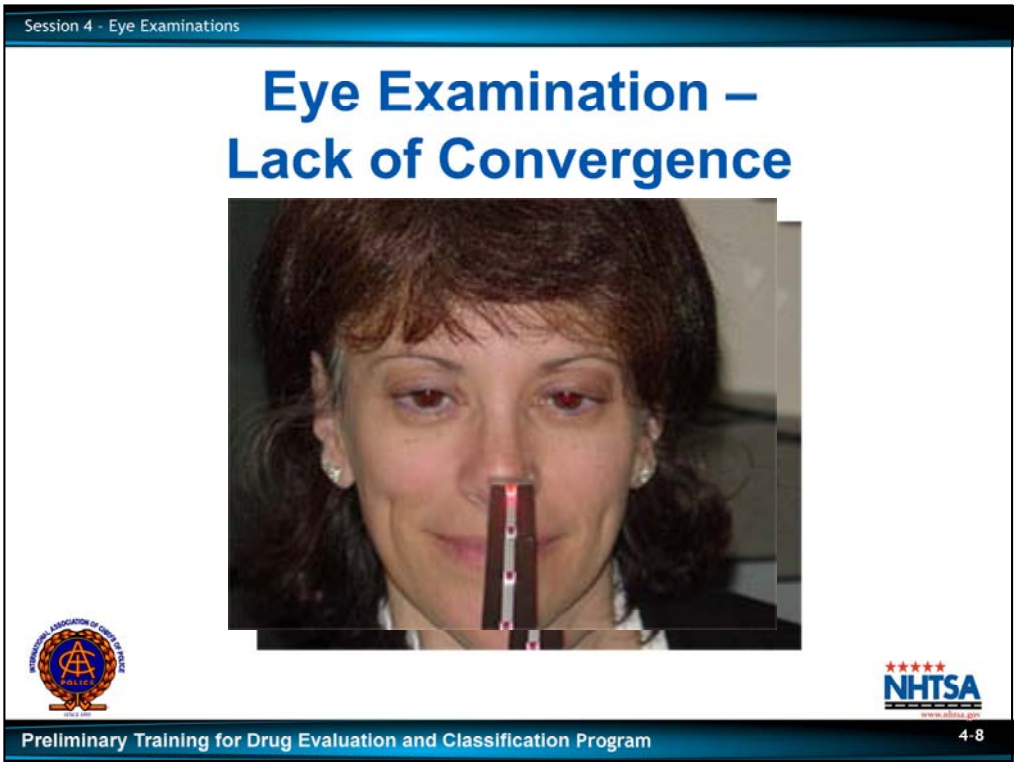
Emphasize that many other facts will also be considered that will help to determine whether Depressants, Inhalants or Dissociative Anesthetics may be present.



- A DRE is expected to be able to estimate the angle of onset of nystagmus to the nearest 5 degree increment, over the range from 30 to 45 degrees.

- If the subject's eyes begin to jerk before they have moved to the 30 degree mark, you will not attempt to estimate the angle precisely, but will record that they exhibit "immediate onset."

- From 30 degrees on out, you will record a numeric estimate of onset.



Lack of Convergence (LOC)

The check for Lack of Convergence (LOC) can provide another clue as to the possible presence of Depressants, Inhalants, or Dissociative Anesthetics.

Lack of Convergence is also an indicator of the possible presence of Cannabis.

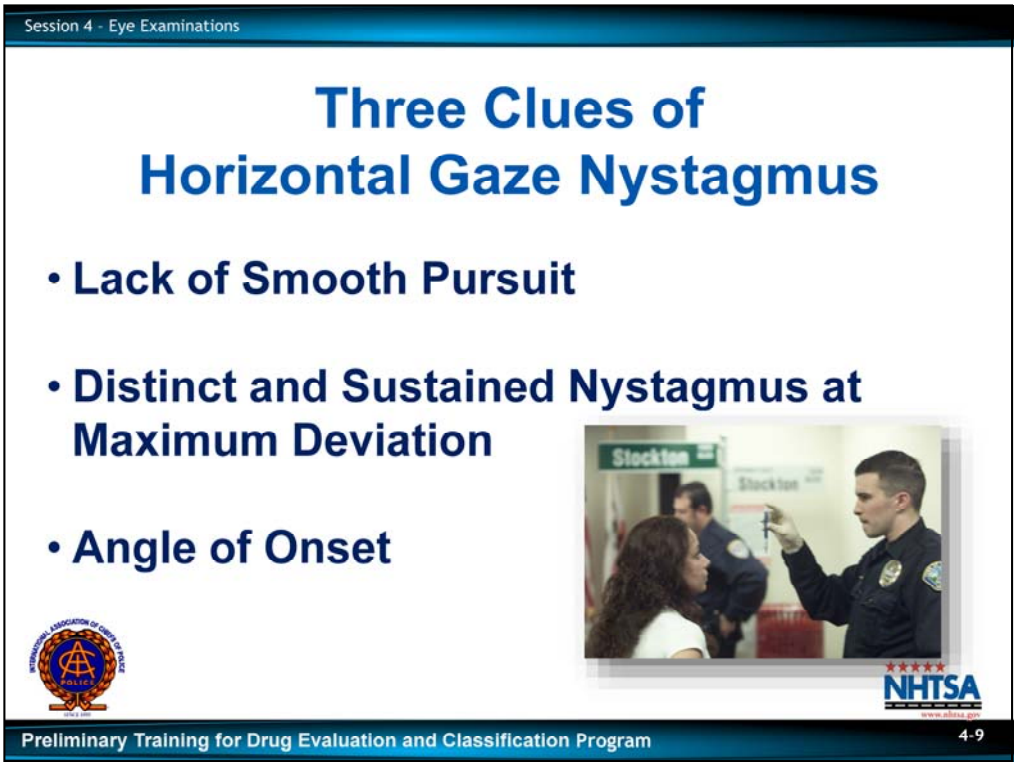
Point out that a DRE might begin to suspect the presence of Cannabis if Lack of Convergence was observed but no HGN was observed.

The checks of pupil size, equal tracking and reaction to light provide useful indicators of the possible presence of many drug categories.

Point out that in addition to signs of drug use, checks of the pupil size and reaction to light may reveal signs of injury or existing medical conditions.

- CNS Depressants, CNS Stimulants and Inhalants will usually cause the pupils to react slowly to light.
- CNS Stimulants, Hallucinogens and Cannabis usually will cause the pupils to dilate.
- Narcotic Analgesics will usually cause the pupils to constrict, with little or no reaction to light.

Solicit participants' comments and questions concerning the purposes of the eye examinations.



B. Procedures and Clues

Three Clues of Horizontal Gaze Nystagmus

Prior to the administration of the HGN test, the eyes are checked separately for equal pupil size, resting nystagmus and equal tracking.

- Note: As pointed out earlier, if the eyes do not track together, or if the pupils are noticeably unequal in size, the chance of a medical disorder or injuries causing the nystagmus may be present. Resting nystagmus may also be observed at this time.

Horizontal Gaze Nystagmus test consists of three separate checks, administered independently to each eye.

Remind the participants that the HGN test is done exactly the same as in the SFST training and that the DRE start with the "suspect's" left eye first.

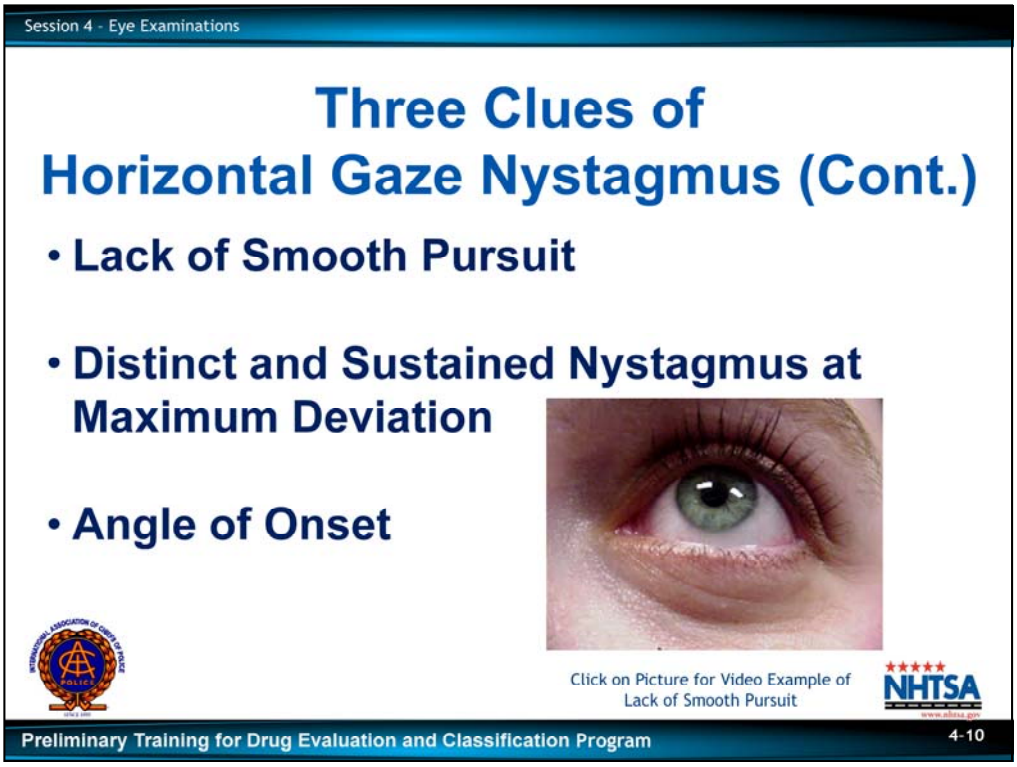
Lack of Smooth Pursuit

The first check is for "lack of smooth pursuit."

***Select a participant, and demonstrate the first check of HGN on that participant*.**

- Position the stimulus approximately 12 to 15 inches from of the subject's nose.
- Hold the tip of the stimulus slightly above the subject's eye level.

Point out that this procedure insures that the eyes will be open wide and easy to observe.



- Instruct the subject to hold their head still and follow the stimulus with the eyes only.
- Move the stimulus smoothly, all the way to the subject's left, then all the way to the right, then back again all the way to the left, then once again all the way back to the right.

Point out that we begin by checking the subject's left eye, then we immediately check the right eye. We make at least two complete passes in front of both eyes.

Demonstrate two complete passes in front of the eyes, using a participant-volunteer as your test subject.

Emphasize: For standardization, we always begin by checking the left eye.

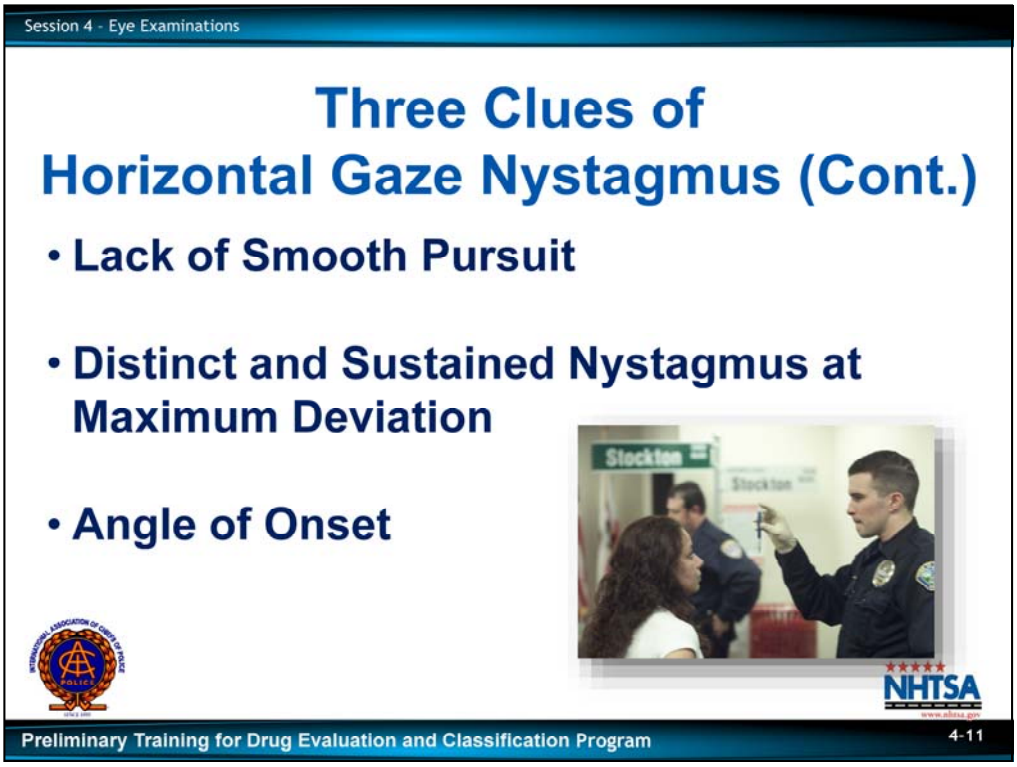
Point out that the stimulus should move at a speed that requires approximately two seconds to bring it from the center to side or approximately 4 seconds from side to side.

- While the eye is moving, examine it for evidence of a lack of smooth pursuit.

Use these or similar analogies:

- A smoothly pursuing eye will move without friction, much the way that a windshield wiper glides across the windshield when it is raining steadily. An eye showing lack of smooth pursuit will move in a fashion similar to a wiper moving across a dry windshield.

Excuse the participant-volunteer and thank him or her for participating.



Participant Practice

Participants' initial practice of the check for lack of smooth pursuit.

Instruct participants to work in pairs, taking turns checking each other's eyes for lack of smooth pursuit.

Monitor, coach and critique the participants' practice.

Allow this practice to continue for only about 2 minutes.

Distinct and Sustained Nystagmus at Maximum Deviation

The second check is for "distinct and sustained nystagmus at maximum deviation."

Select a participant and demonstrate the second check of HGN on that participant.

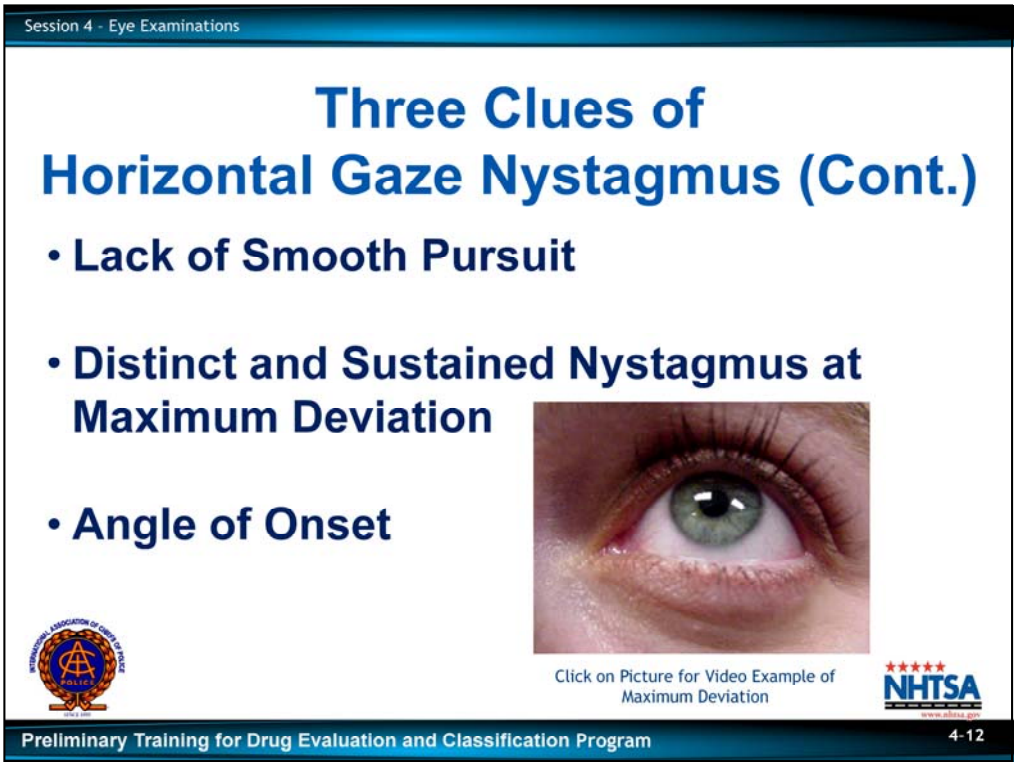
- Again position the stimulus as before.

Note: Remind participants that the nystagmus must be both distinct and sustained.

- Move the stimulus all the way to the subject's left side and hold it there so that the subject's eye is turned as far to the side as possible.

Remind participants that we always start by checking the subject's left eye.

- Hold the eye at that position for a minimum of 4 seconds, to check carefully for any jerking that may be present.
- Then, move the stimulus all the way to the subject's right side, and hold it there for a minimum of 4 seconds.



Remind participants that as soon as we have finished checking the left eye, we immediately repeat the check on the right.

***Repeat the procedure*.**

With this cue, the examiner looks for distinct and sustained jerking.

A slightly or barely visible tremor is not sufficient to consider this cue present.

A definite, strong jerking must be seen.

Point out that for HGN to be considered present, a distinct and sustained jerking must be present for a minimum of four seconds.

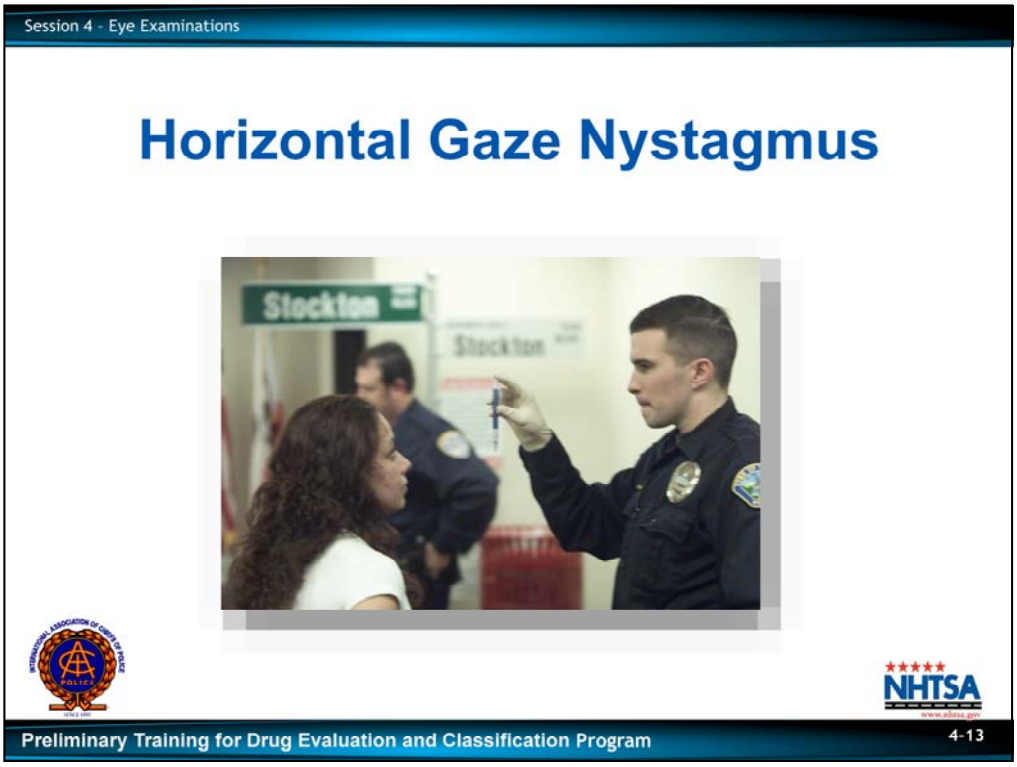
Excuse the participant-volunteer and thank him or her for participating.

Participant Practice

Participants' initial practice of the check for distinct and sustained nystagmus at maximum deviation.

Instruct participants to work in pairs, taking turns checking each other's eyes for distinct and sustained nystagmus at maximum deviation.

Monitor, coach and critique the participants' practice. Allow this practice to continue for only about 2 minutes.



Angle of Onset

The final check is for the "angle of onset." The formula is BAC = 50 – Angle of Onset.

Select a participant and demonstrate the third check of HGN on that participant.

- Position the stimulus as before.
- Slowly move the stimulus to the subject's left side, carefully watching the eye for the first sign of jerking.
- When you think that you see the eye jerk, stop moving the stimulus and hold it still.

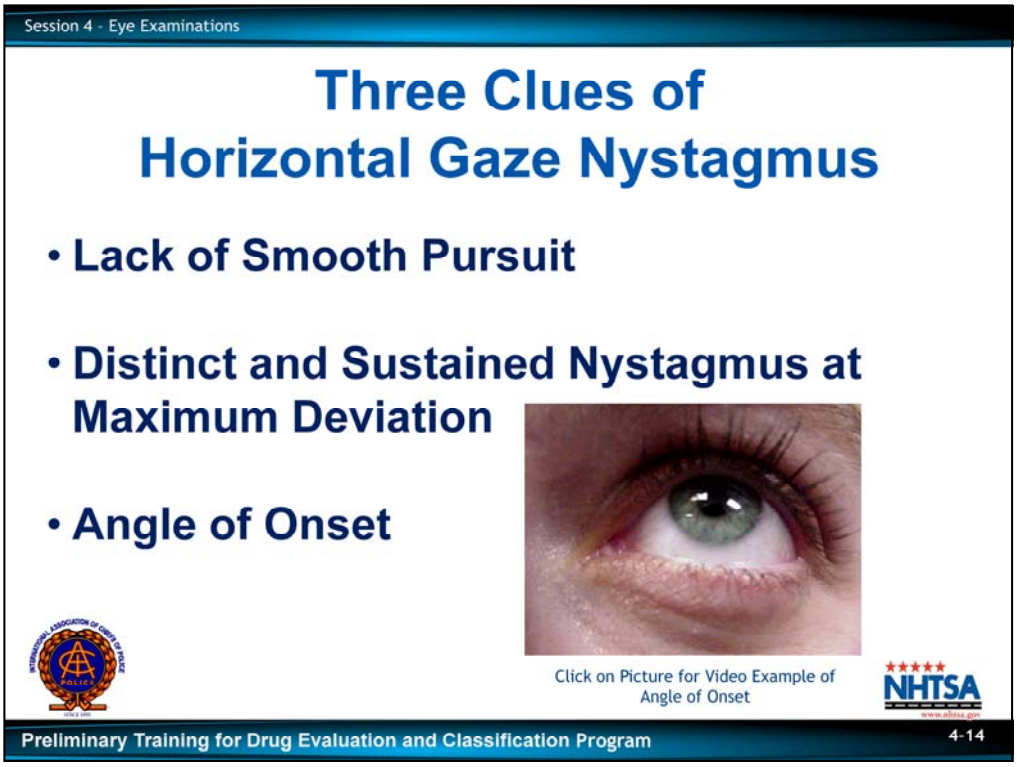
Point out: If the eye is not jerking, resume moving the stimulus slowly to the side, again observing for the first sign of jerking.

- Verify that the eye is, in fact, jerking.
- Once you have established that you have located the point of onset, estimate the angle.

Exhibit a template if available.

- Repeat this procedure on the subject's right eye.

Point out that angle estimation simply requires practice.



Participant Practice

- Participants' initial practice of angle of onset estimation.

Point out that the template will be used during practice.

Excuse the participant-volunteer and thank him or her for participating.

Instruct participants to work in pairs, taking turns estimating angles of each other's eyes.

Instruct participants that they are to try to draw their partner's eyes to 3 different angles: 30, 35, and 40 degrees.

Participants will check their accuracy using the template.

Monitor, coach and critique the participants' practice.

Allow this practice to continue for only about 3 minutes.

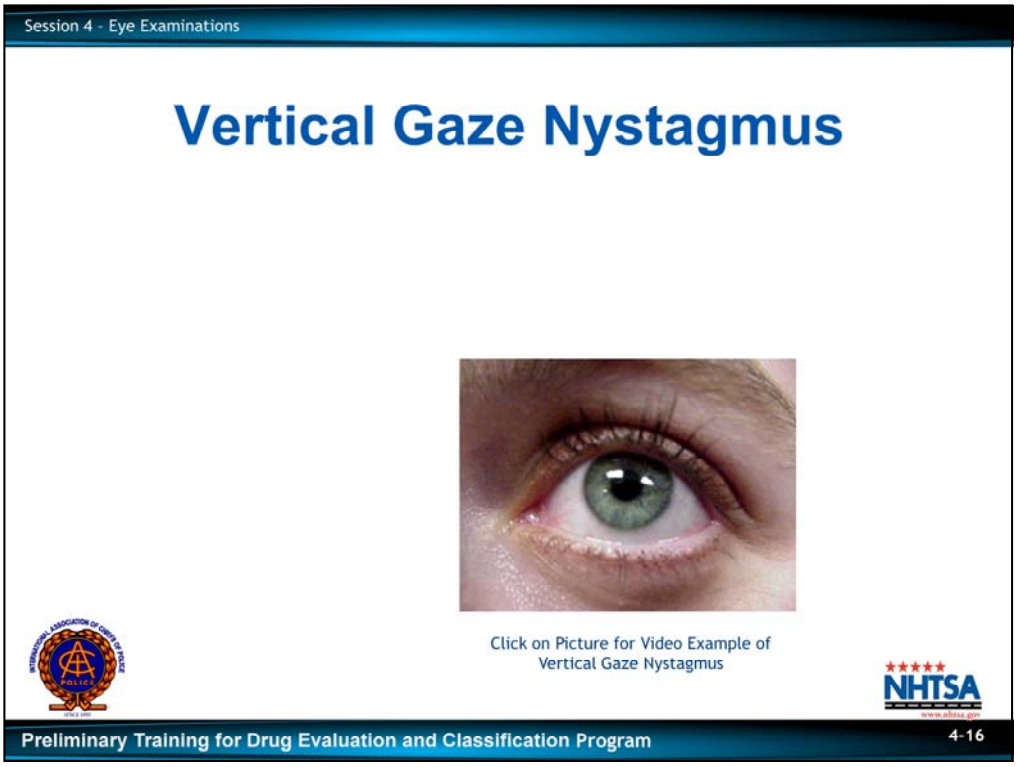
In their previous training in HGN, some participants may have been taught to look for all 3 clues in one eye, and then to check the other eye for all 3 clues. There is nothing wrong with that procedure, from either a scientific or legal perspective. As DREs however, to conform to SFST standards, we expect them to switch from eye to eye as they "work through" the three clues.

There are two reasons for this:

Standardization: We want all DREs to work in the same way; the "left eye / right eye" switching procedure is simply the standard approach that we have adopted.

Medical Complications: DREs must always be alert to the possibility of a medical complication, such as stroke, brain tumor or other injury to the brain. These kinds of injuries often will cause the two eyes to behave quite differently from one another. For example, the left eye might jerk noticeably while the right eye tracks smoothly. By always immediately comparing the performances of the two eyes, the DRE might more quickly spot the possibility of a medical complication.

NHTSA modified its SFST training courses to conform to this "left / right" procedure in 1989.



Vertical Gaze Nystagmus

The Vertical Gaze Nystagmus test is a very simple test.

Select a participant and demonstrate the Vertical Gaze Nystagmus test on the participant.

- Position the stimulus horizontally, approximately 12 to 15 inches in front of the subject's nose.
- Point out to the subject that he or she will have to keep their head steady and try to keep their eyes focused on the stimulus as it moves upward.
- Raise the stimulus until the subject's eyes are elevated as far as possible.
- Watch closely for evidence of jerking.

Point out that the examiner should keep the subject's eyes elevated for approximately 4 seconds to verify that the jerking is present and continues during the full four seconds.

Point out that we do not attempt to estimate an angle of onset for Vertical Gaze Nystagmus: we simply record whether a visible up and down jerking is present or not present.

Excuse the participant-volunteer and thank him or her for participating.

Participant Practice

Participants' initial practice of the Vertical Gaze Nystagmus test.

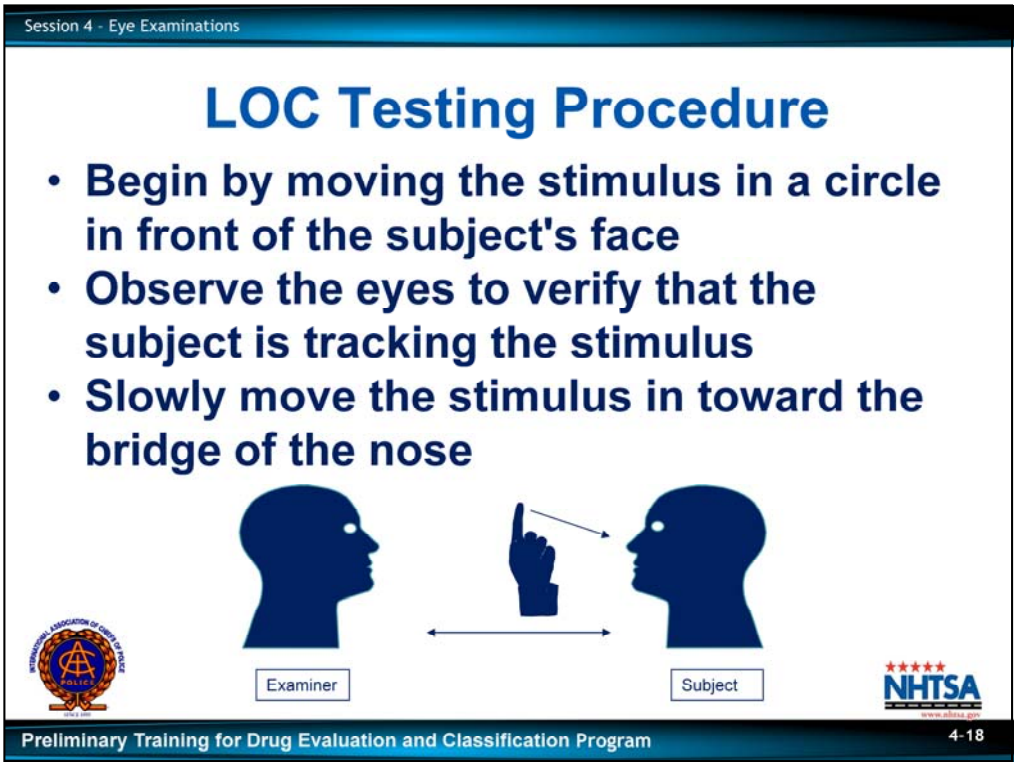
Instruct participants to work in pairs, taking turns administering the Vertical Gaze Nystagmus test to each other.

Monitor, coach and critique the participants' practice.

Allow this practice to continue for only about 2 minutes.

Lack of Convergence

The test for Lack of Convergence (LOC) determines whether the subject is able to cross his or her eyes.



Select a participant and demonstrate the test for Lack of Convergence on that participant.

- Position the stimulus approximately 12 to 15 inches in front of the subject's nose in the same position we use for the HGN test.

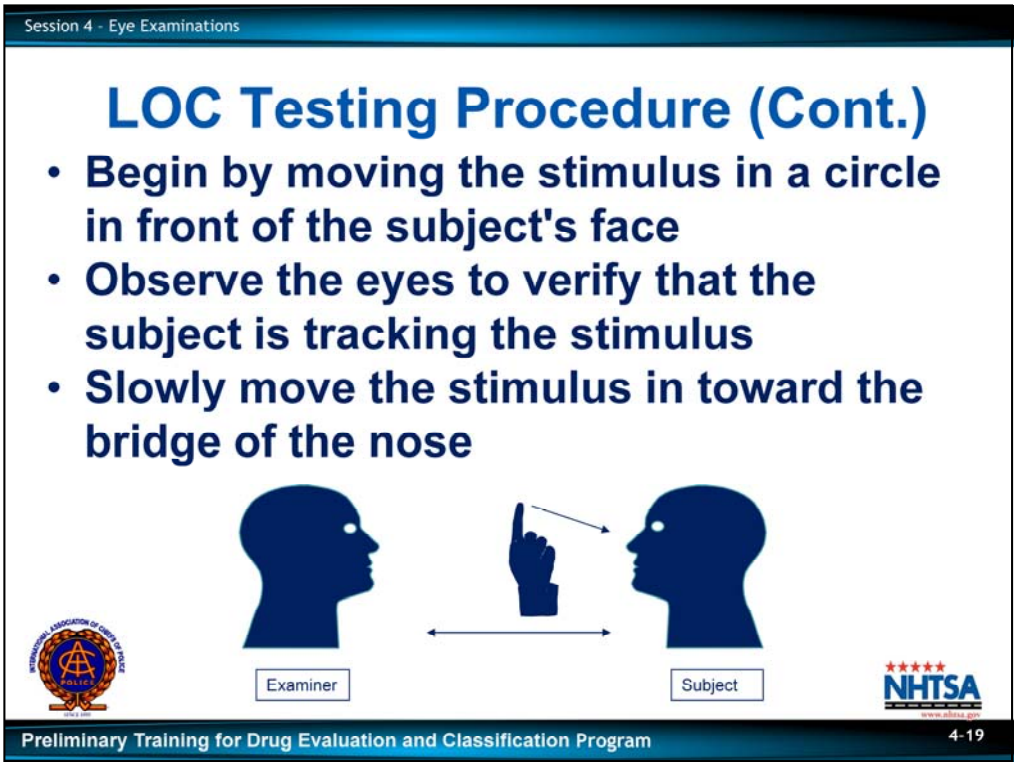
Point out in the simplest terms – Lack of Convergence means an inability to cross the eyes.

- Inform the subject that you are going to move the stimulus around in a circle in front of his or her face and to follow the stimulus with his or her eyes only.

Point out that the stimulus can be moved either clockwise or counterclockwise.

- Inform the subject that you will move the tip of the stimulus in toward the bridge of his or her nose.

Emphasize that it is important that the subject be aware of what will happen so that he or she will not flinch or become frightened when you move the stimulus toward his or her face.



Point out to the subject that 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.

Point out that you will not actually touch the subject's nose.

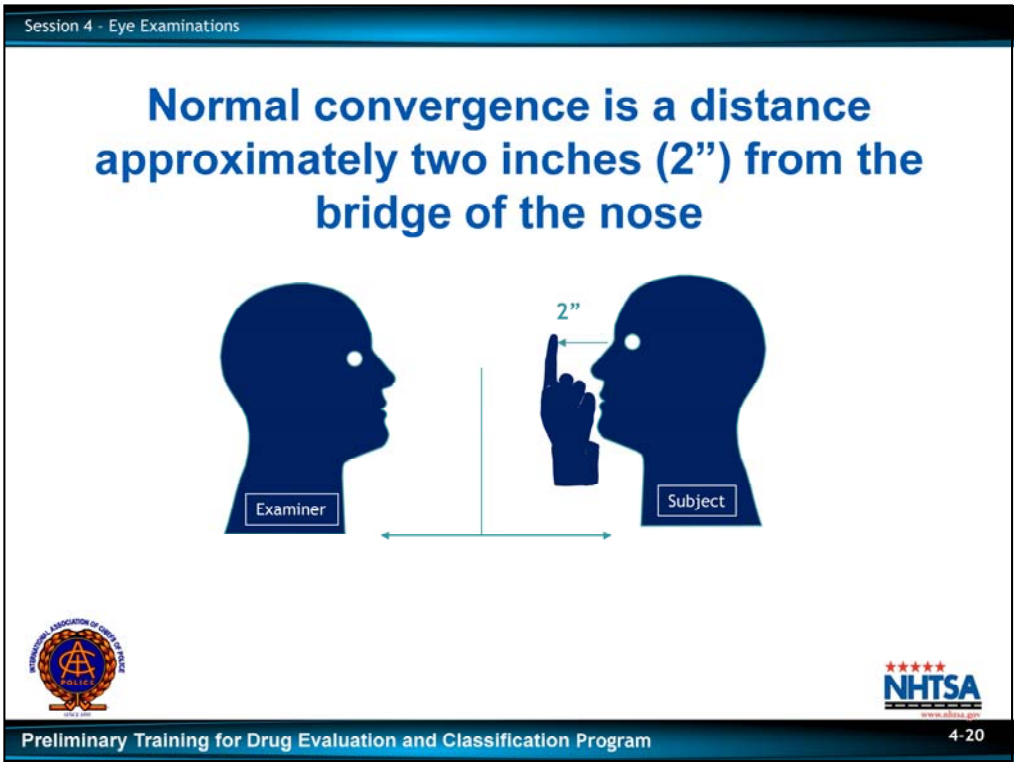
- Start to move the object slowly in a circle.

Point out that this initial circular motion helps to verify that the subject has focused on the stimulus and is able to track it.

- Verify the subject is tracking the stimulus.
- Move the stimulus within approximately two inches of the bridge of the nose. Carefully observe the subject's eyes to determine whether both eyes converge on the stimulus.

Point out not to actually touch the nose and not to go any closer than approximately two inches from the bridge of the nose.

Remind the participants that prior to conducting the check for Lack of Convergence the DRE should determine if the subject to be tested routinely wears eyeglasses for reading and near visual tasks and if so, are the reading glasses available for the test. If so, ensure that the eyeglasses are worn for the check for LOC.



- If the eyes converge (cross) when the stimulus is approximately two inches from the bridge of the nose, the Lack of Convergence is “not present“
- Lack of convergence is present if the subject’s eyes do not come together and cross as they track and stay aligned on the stimulus
- In a normal non-impaired subject, the eyes should come together (converge) and remain converged for one second.

Point out that convergence response in most people is a distance of approximately two inches from the bridge of the nose.

- If the eyes do not converge or remain converged on the stimulus for one second, then Lack of Convergence is present.

Point out that many normal non-impaired people cannot converge to the bridge of the nose. Moving the stimulus within two inches of the nose provides a better indicator of lack of convergence attributed to drug impairment.

Participant Practice

Participants’ initial practice of the test for Lack of Convergence.

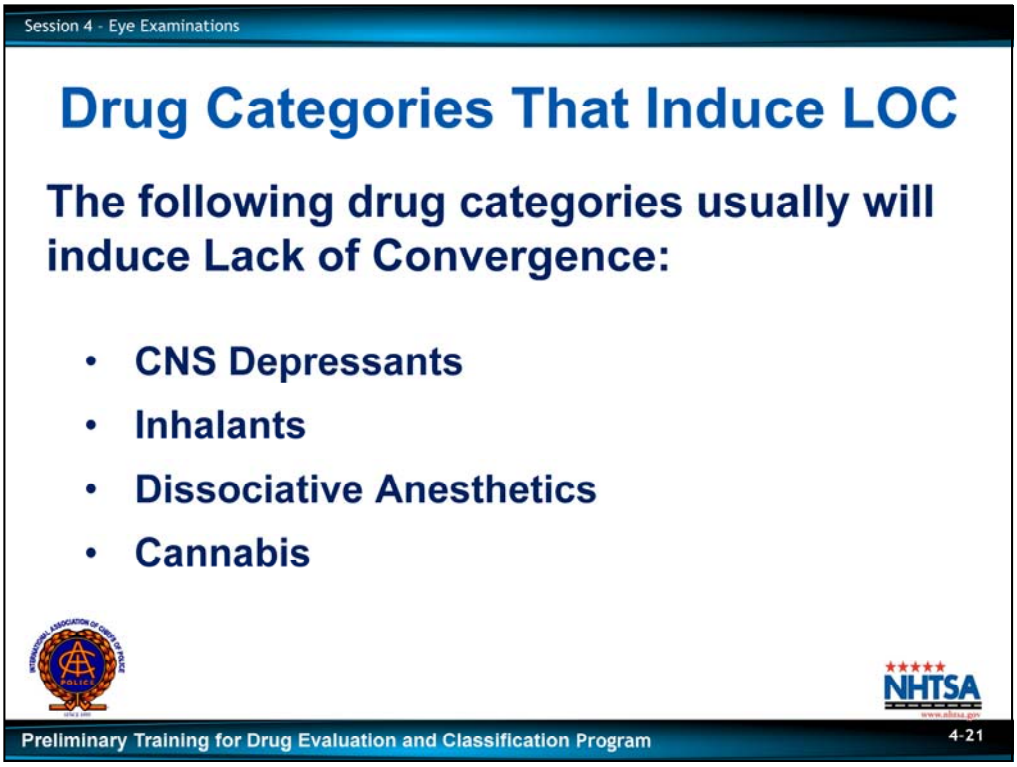
Point out to keep the stimulus high enough so that eye movement can be observed.

Excuse the participant-volunteer and thank him or her for participating.

Instruct participants to work in pairs, taking turns testing each other’s eyes for Lack of Convergence.

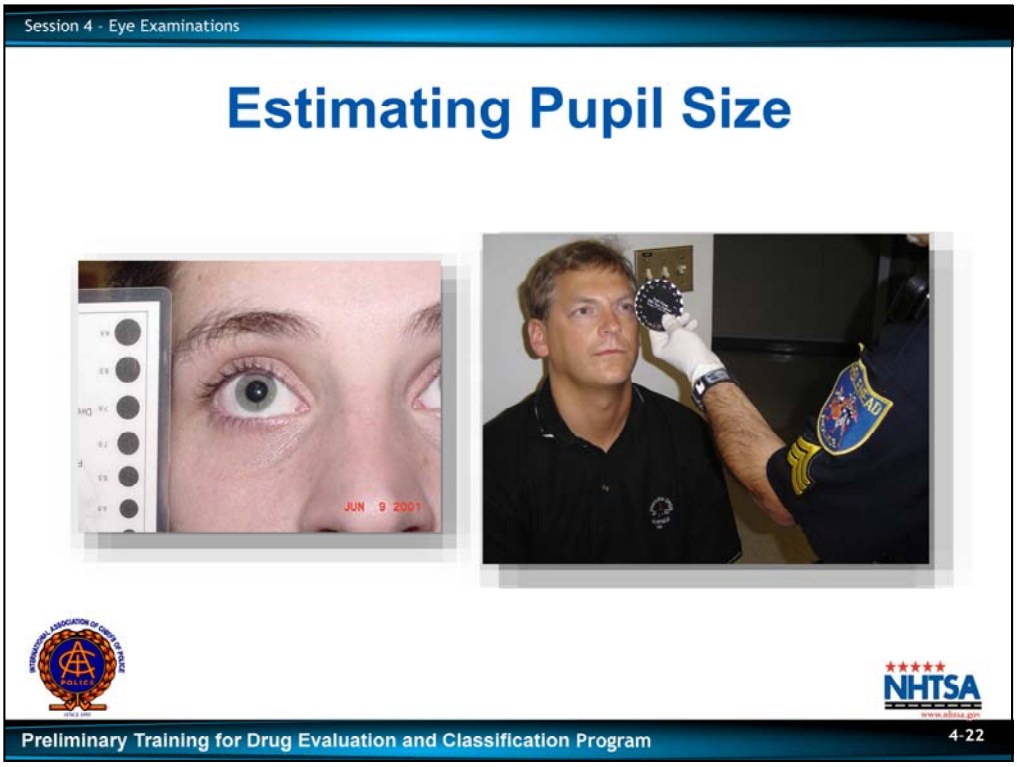
Monitor, coach and critique the participants’ practice.

Allow this practice to continue for only about 2 minutes.



Drug categories which usually cause lack of convergence include:

- CNS Depressants
- Inhalants
- Dissociative Anesthetics
- Cannabis



Estimation of Pupil Size

We use a device called a pupillometer to estimate the size of the subject's pupil.

The DRE pupillometer has a series of circles or semi-circles, with diameters usually ranging from 1.0 mm to 10.0 mm, in half millimeter increments.

Exhibit a pupillometer.

Point out that our eyes continually adjust to accommodate different lighting conditions

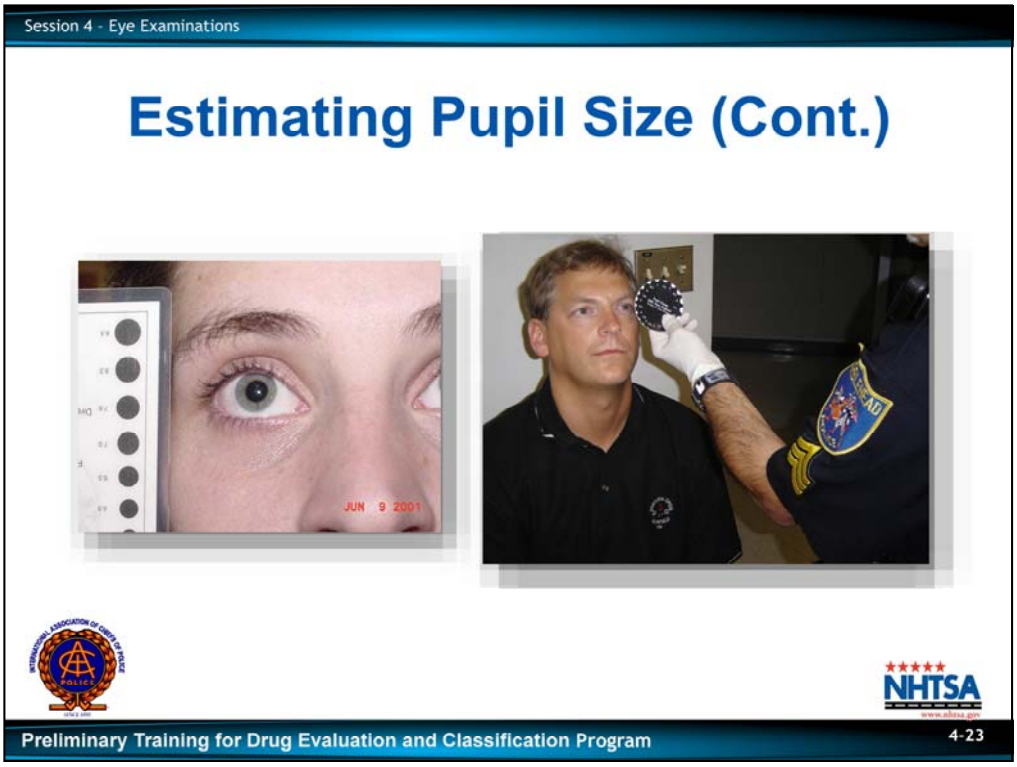
Emphasize the measurement is an "estimate."

Select a participant and demonstrate pupil size estimation using the participant.

Point out to begin by testing the subject's left eye first.

The pupillometer is held alongside the subject's eye, and moved up and down until the circle or semi-circle closest in size to the pupil is located.

The pupil size estimations are recorded as the numeric value that corresponds to the diameter of the circle or semi-circle closest in size to the subject's pupil in each lighting condition.



Participants' Initial Practice of Pupil Size Estimation

Select a participant from the class and demonstrate how the pupil size is estimated.

Upon completion, excuse the participant-volunteer and thank him or her for participating.

Instruct participants to work in pairs, taking turns estimating each other's pupils.

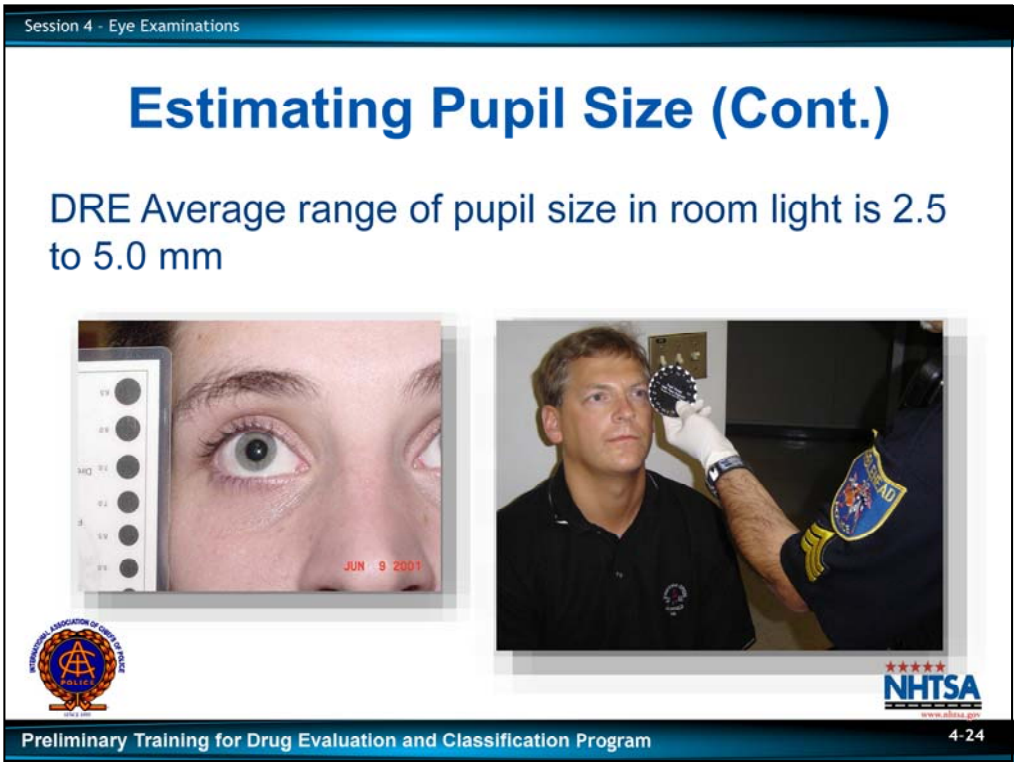
Monitor, coach and critique the participants' practice.

Allow this practice to continue for only about 2 minutes.

Tell the participants to record on paper the pupil sizes of their partners.

Ask the participants how many found partners with different sized pupils (i.e., one pupil larger or smaller than the right).

Point out that it is not too uncommon to find people whose pupils differ by as much as one-half millimeter, but the larger differences are more unusual.



Tabulate the pupil size estimates made by the participants on the flip-chart using the following sizes:

8.5 or larger _____

8.0_____

7.5_____

7.0_____

6.5_____

6.0_____

5.5_____

5.0_____

4.5_____

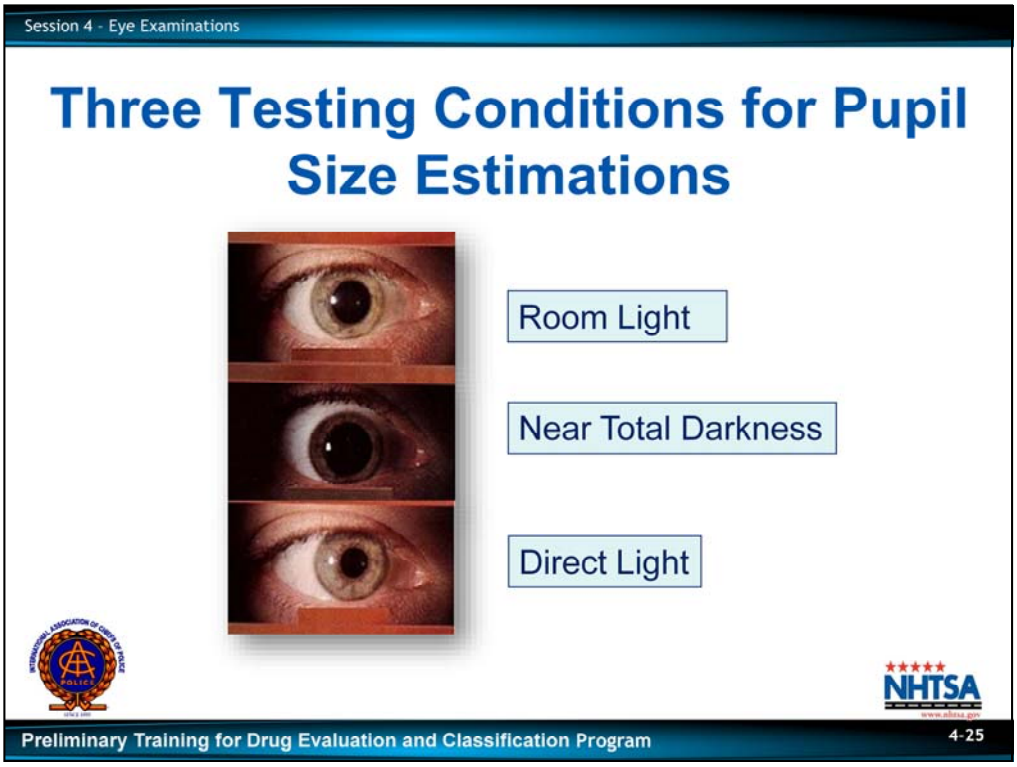
4.0_____

3.5_____

3.0_____

2.5 or smaller_____

Point out that the "DRE average" range of pupil size in room light is 2.5 to 5.0 mm.

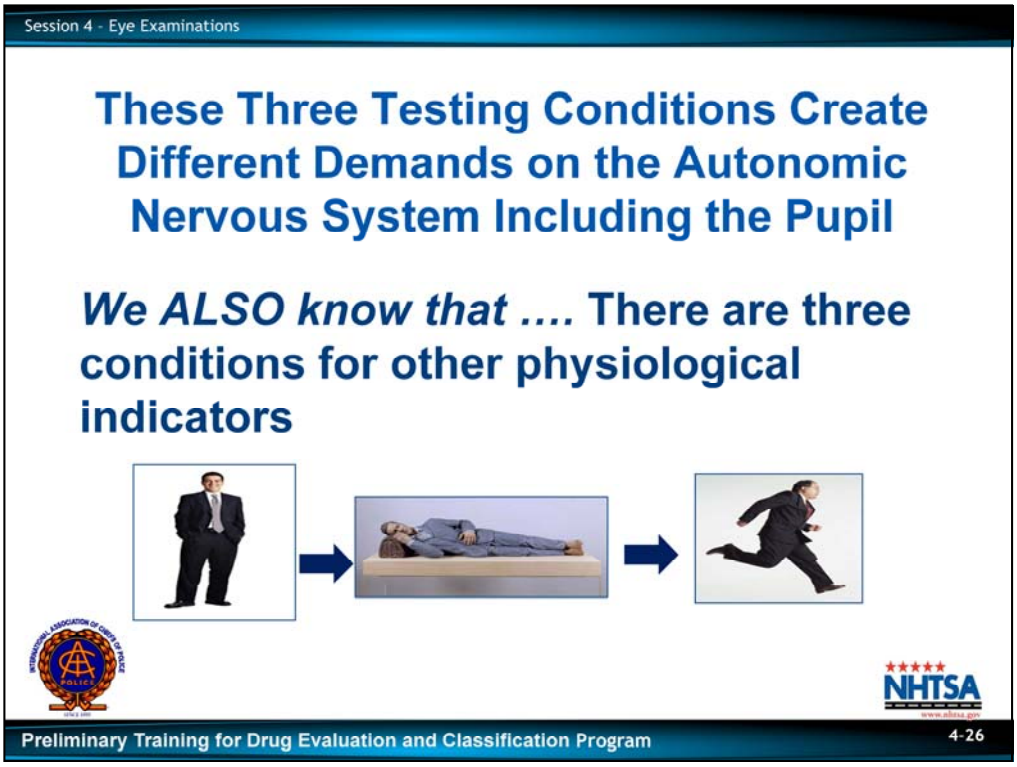


Three Lighting Conditions

We estimate pupil size under three (3) different lighting conditions:

- Room Light
- Near Total Darkness
- Direct Light

The Indirect Light estimation was removed from the DRE protocol in 2003 after research determined it had no direct correlation to impairment.



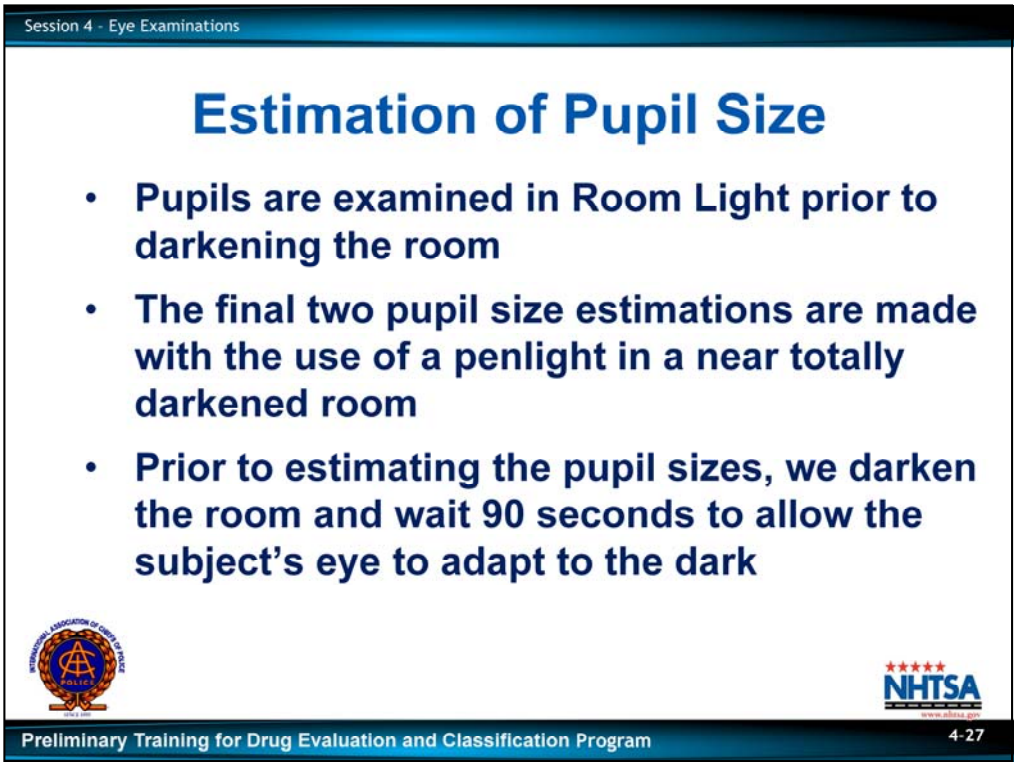
- Different testing conditions create different demands on the autonomic nervous system, including the pupil.

- Examining the pupils in three different lighting conditions is similar to examining other clinical indicators, i.e., pulse or blood pressure in different conditions.

In the DEC program and DRE training we use the terms “Normal”, “Average”, “Average Ranges” or “DRE Average Range”.

“Normal” means a range of values that represents the “middle” or “typical” value that the majority of healthy, non-impaired people would be expected to exhibit or have in a specific test.

Point out that the use of the word “normal” and how it relates to the DEC Program will be covered more in the 7-Day School.



Estimation of Pupil Size under Room Light

- Pupils are examined in Room Light prior to darkening the room.

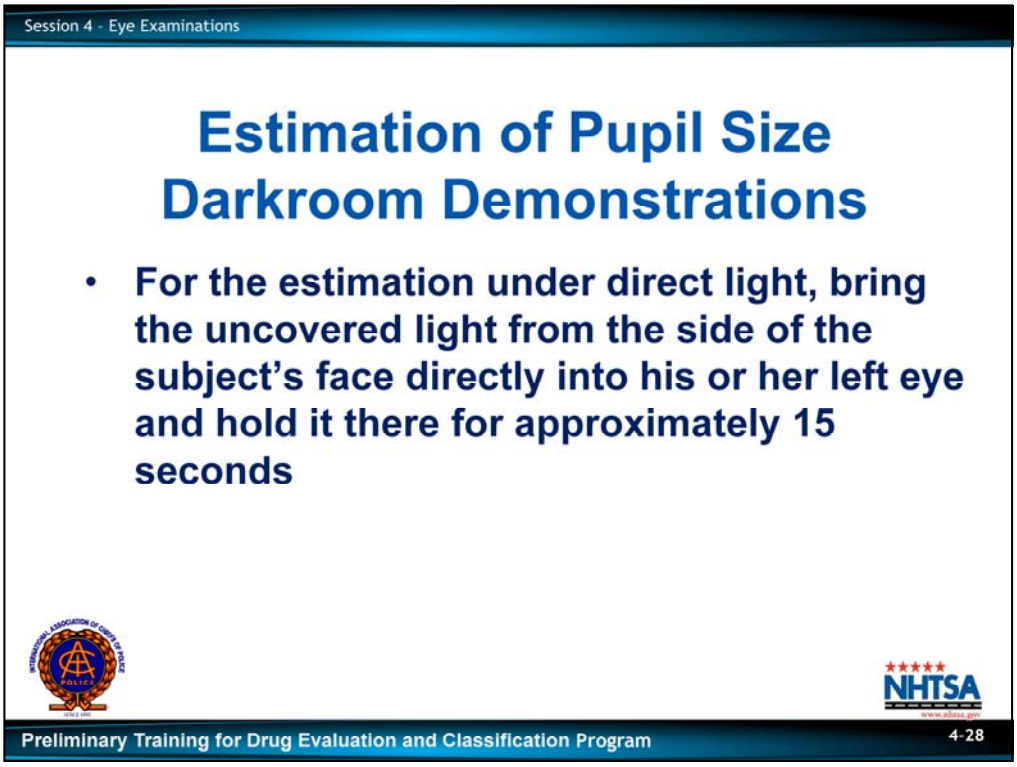
Estimation of Pupil Size under Near Total Darkness and Direct Light

The final two pupil size estimations are made with the use of a penlight in a near totally darkened room.

- Prior to estimating the pupil sizes, we darken the room and wait 90 seconds to allow the subject's eyes and our own to adapt to the dark.

Demonstrate this.

- For the estimation under near total darkness, completely cover the tip of the penlight with your finger or thumb, so that only a reddish glow and no white light emerges.
- Bring the glowing red tip up toward the subject's left eye until you can distinguish the pupil from the colored portion of the eye (iris).
- Position the pupillometer alongside the pupil (left eye first) and locate the circle or semi-circle that is closest in size to the pupil.
- Repeat the procedure for the subject's right eye.



Select a participant to participate in demonstrations of darkroom pupil measurements.

- For the estimation under direct light, bring the uncovered light from the side of the subject's face directly into his or her left eye and hold it there for approximately 15 seconds.

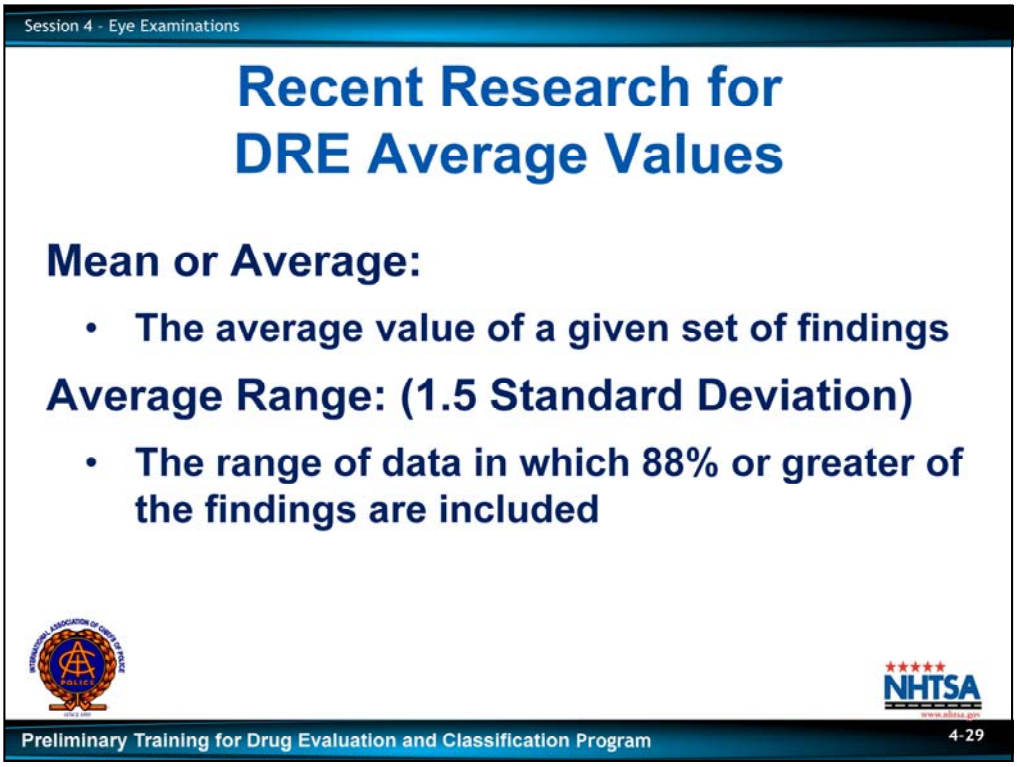
Demonstrate this.

Emphasize that the penlight should be positioned so that the beam just "fits" or approximately fills the eye socket.

- Bring the pupillometer up alongside the left eye, and find the circle or semi-circle that is closest in size to the pupil.
- Repeat the procedure for the right eye.

Average Sizes for the Pupil

Since we estimate pupil size under three different lighting conditions (Room Light, Near Total Darkness, and Direct Light) the range of pupil sizes will vary.



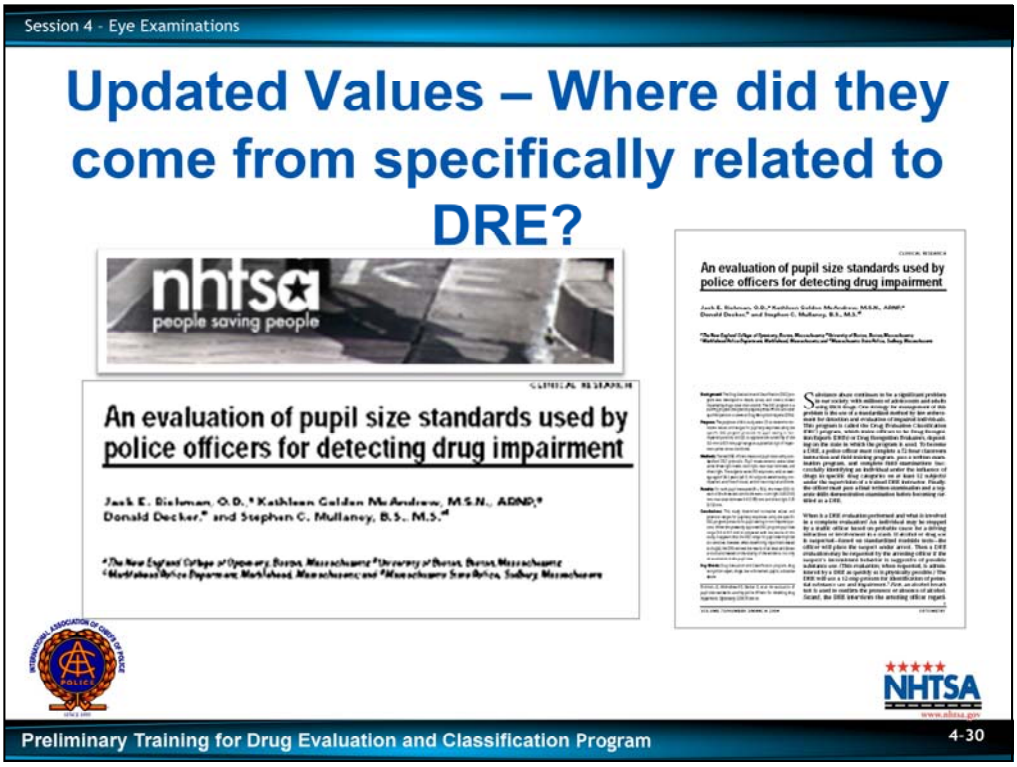
Basic Concepts Relative to Interpreting Pupil Sizes

It is important to understand a few basic concepts relative to interpreting pupil sizes. Understanding these concepts will allow DRE's to better understand the relationship of pupil size to impairment.

Mean values and average ranges: scientifically validated studies were conducted to determine normative values for pupil size in non-impaired persons. These studies show what one would expect a person to exhibit when their pupil sizes are checked under different lighting conditions. Sometimes average means "in the middle" or sum of all numbers divided by the number in a particular group. What we use for interpretation purposes are "average ranges" of pupil sizes.

Point out that when all of the study subjects were tested, the majority (approximately 88%) of the non-impaired people fell within the "average ranges."

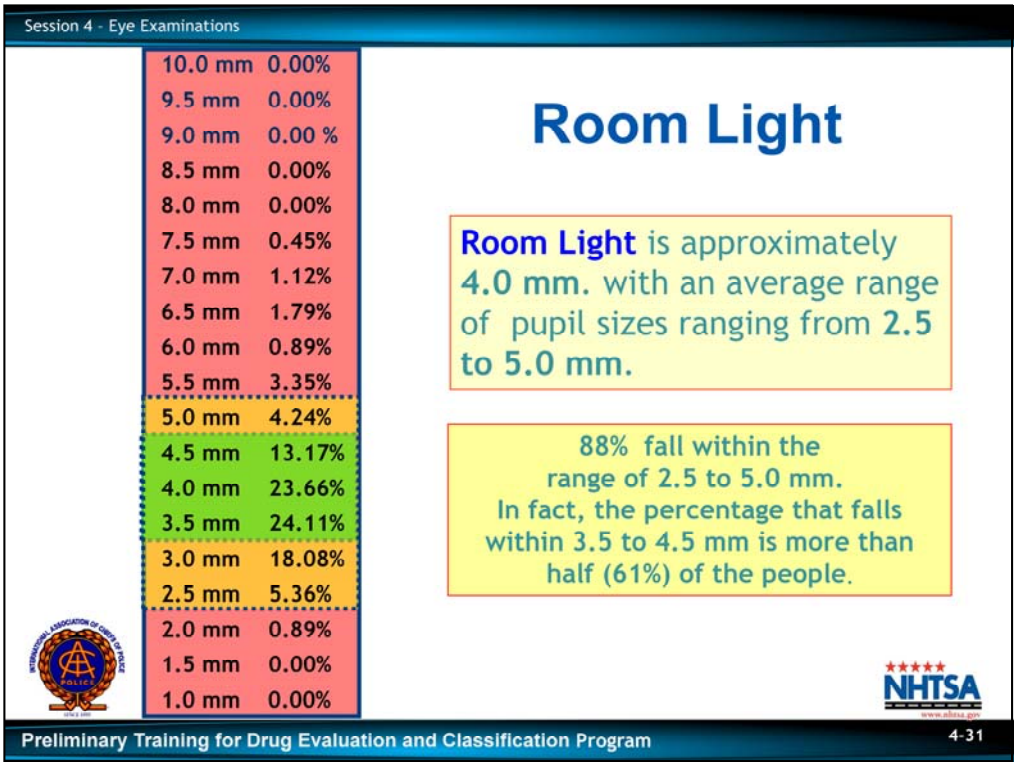
- As a DRE, you will be making your decision of impairment based on clinical, psychophysical, and behavioral indicators. This includes using pupil sizes as one of the factors in determining that impairment.
- With many people, even under very bright light, the pupils won't constrict much below a diameter of 2.0 mm, and even under near total dark conditions, the pupils usually only dilate to a diameter of not more than 8.5 mm.



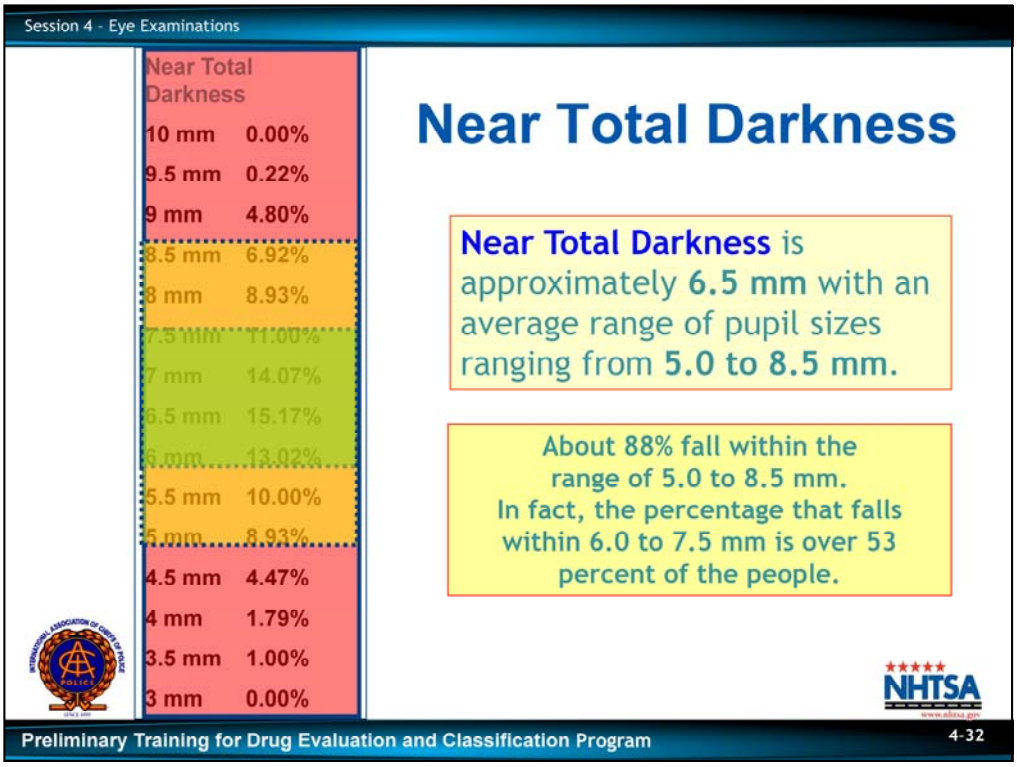
- Studies have indicated there are significant differences between the average pupil size in these three conditions. *(Source: See Below)*
- Consequently, the use of three distinct pupil sizes range for each of the different testing conditions may be more useful to determine impairment versus non-impairment.

Point out that although there are several studies that indicate these pupil sizes are "for the majority of non-impaired people," there is one study in particular that specifies the average size and ranges:

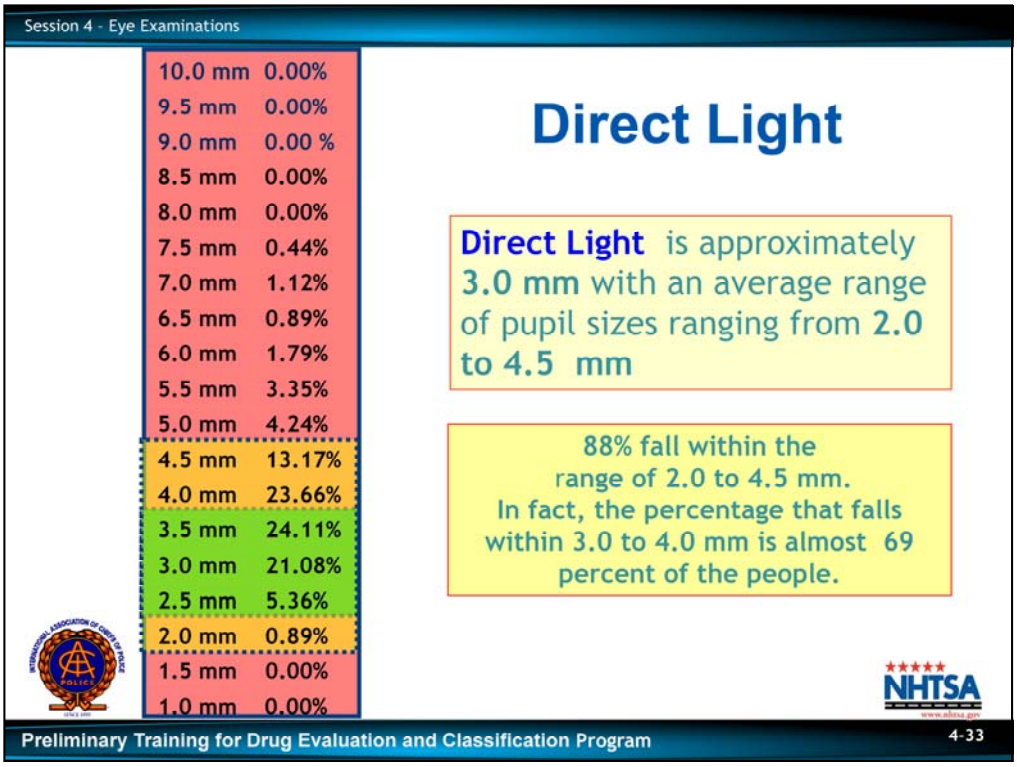
Source: "An Evaluation of Pupil Size Standards Used By Police Officers for Detecting Drug Impairment" JAOA, March 2004, Richman, McAndrew, Decker & Mullaney.



- Room Light is approximately 4.0 mm with an average range of sizes ranging from 2.5 to 5.0 mm.



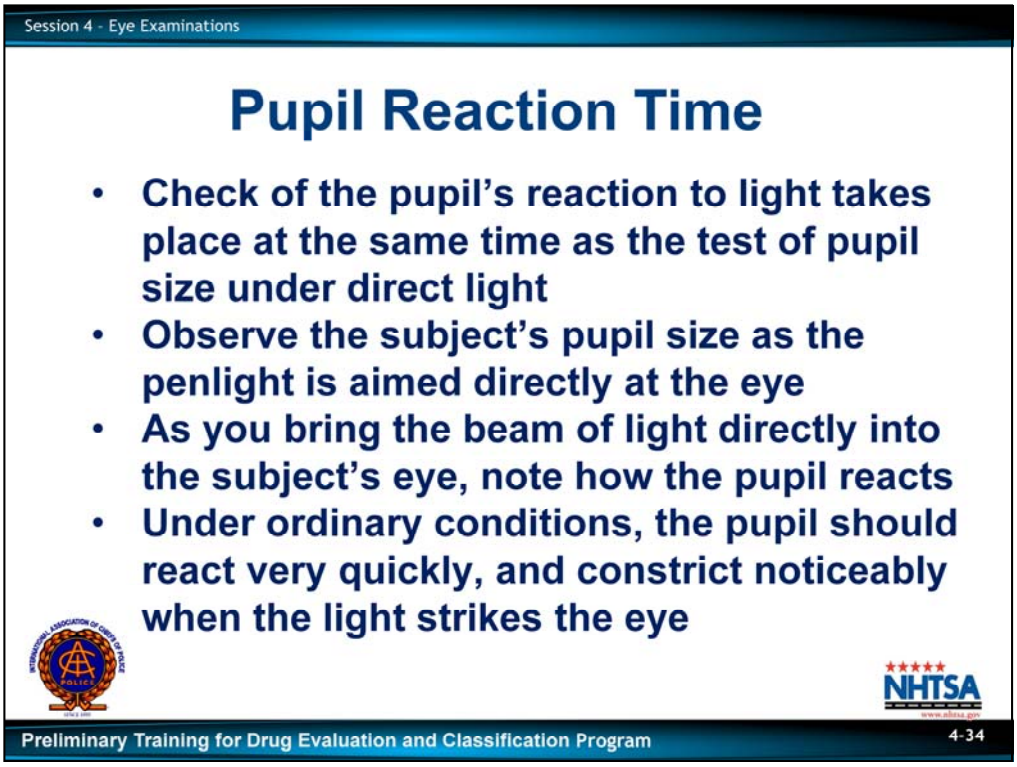
- Near Total Darkness is approximately 6.5 mm with an average range of pupil sizes ranging from 5.0 to 8.5 mm.



- Direct Light is approximately 3.0 mm with an average range of pupil sizes ranging from 2.0 to 4.5 mm

Many drugs, however, will affect the dilation or constriction of the pupils and many cause the pupil size to go outside these ranges

- ***Point out that specific drug categories and their relationship to pupil size will be covered later***



The check of the pupil's reaction to light takes place at the same time as the test of pupil size under direct light.

- Observe the subject's pupil size as the penlight is aimed directly at the subject's eye.

Demonstrate this using a participant-volunteer.

- As you bring the beam of light directly into the subject's eye, note how the pupil reacts.

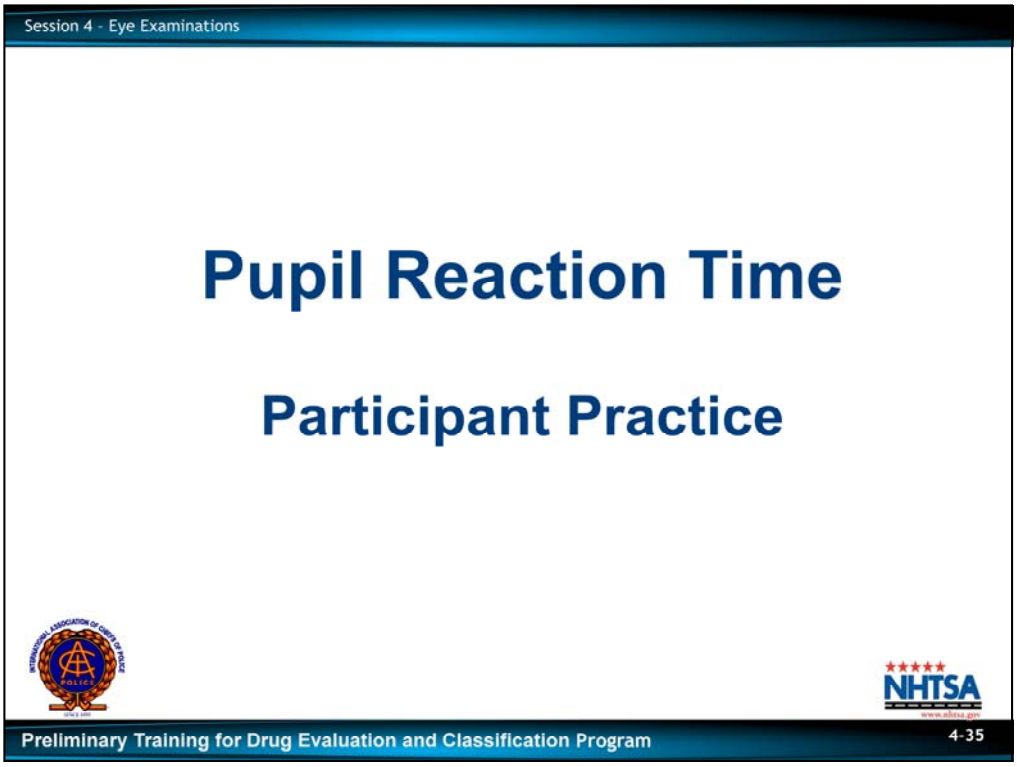
Demonstrate this.

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

Point out that pupillary reaction to light should occur within one second.

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

Excuse the participant-volunteer and thank him or her for participating.



Participant Practice

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

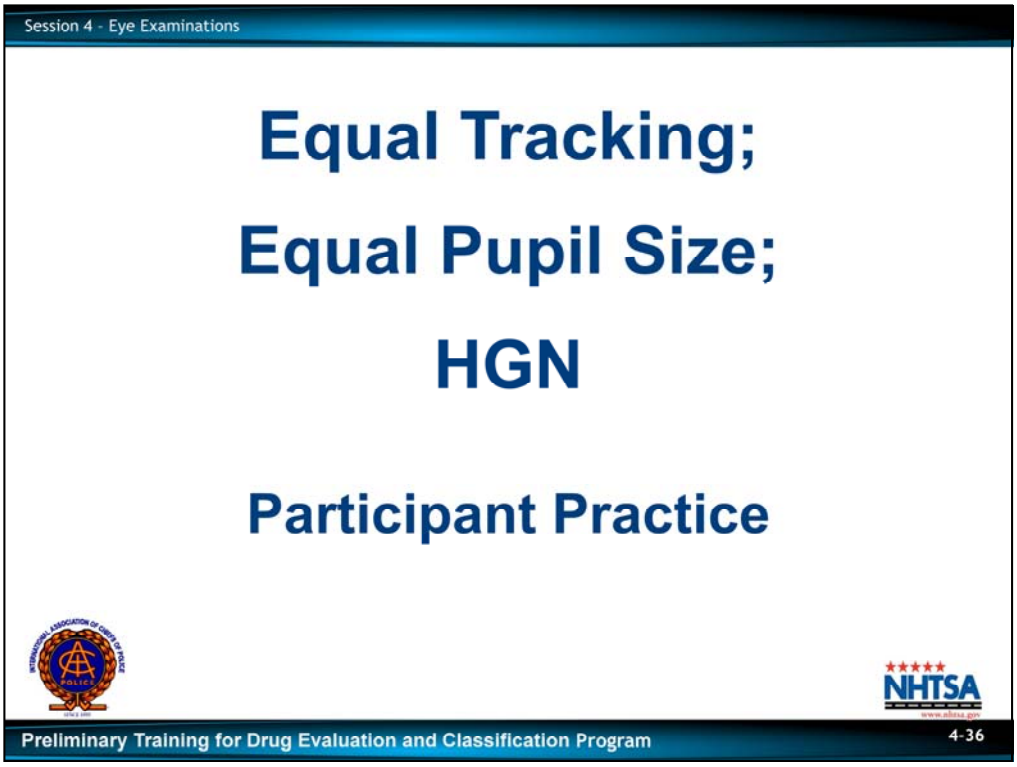
Instruct the participants to work in pairs, taking turns shining the light into each other's eye and observing the pupil's reaction.

Remind participants to position the penlight so that the beam approximately"fits" the eye socket when the beam is brought directly into the eye.

Monitor, coach and critique the participants' practice.

Allow the practice to continue for only about 2 minutes.

Solicit participants' comments and questions concerning the eye examinations.



D. <u>Demonstrations</u>

Select two participants to come before the class.

Demonstrate equal tracking and equal pupil size.

Demonstration of Horizontal Gaze Nystagmus.

Instruct one participant to demonstrate the administration of HGN to the other participant.

Check for lack of smooth pursuit.

Check for distinct and sustained nystagmus at maximum deviation.

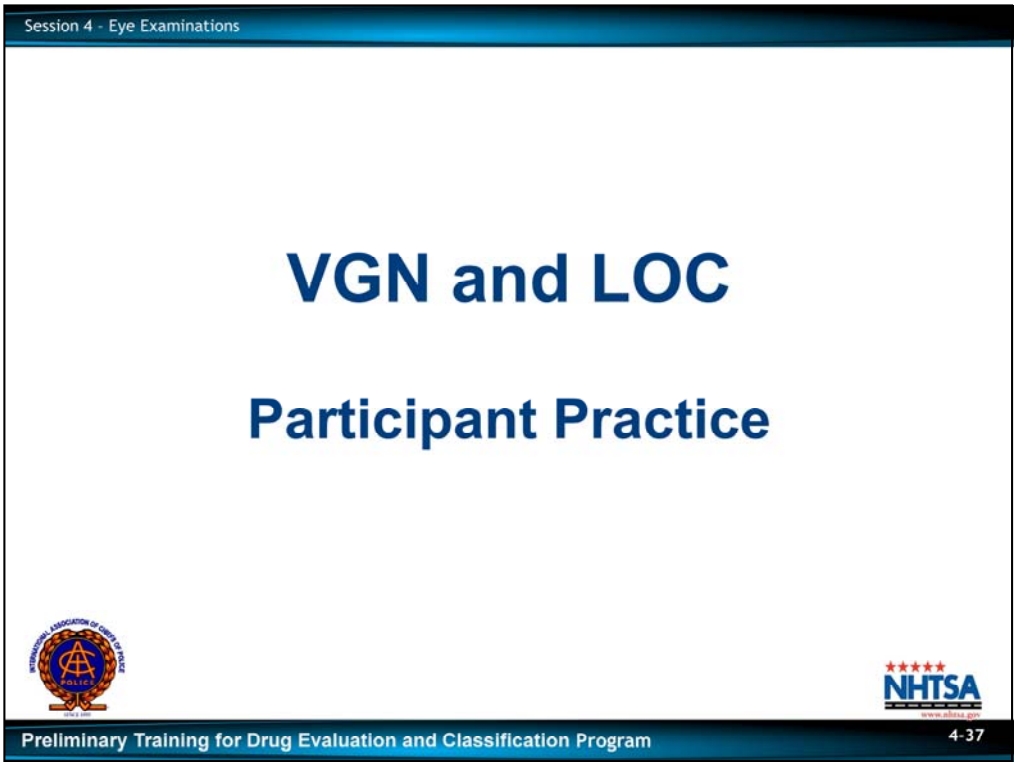
Coach and critique the participant-administrator's performance.

Estimation of the Angle of Onset

Make sure that the participant-administrator checks both eyes.

When the participant-administrator has completed the HGN test, instruct the participant-administrator to draw the participant-subject's eye to an angle of 35 degrees. Check the accuracy of this estimate, using the template.

Excuse the two participants and thank them for participating.



Demonstration of Vertical Gaze Nystagmus and Lack of Convergence

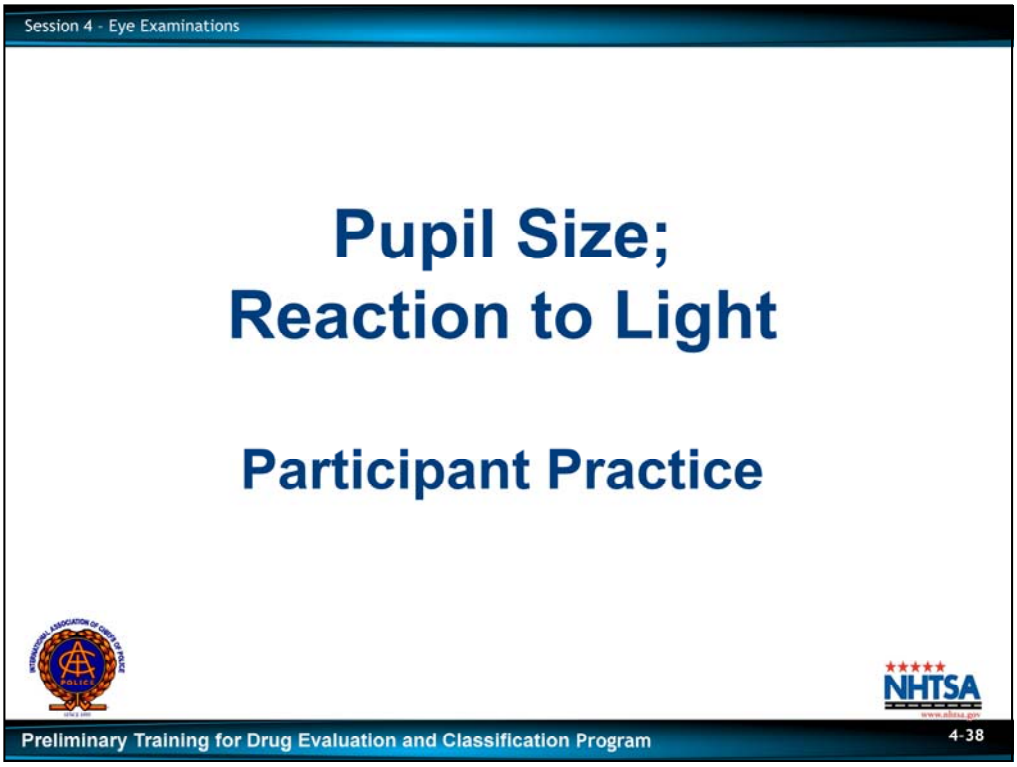
Select two other participants to come before the class and instruct one participant to check the other for Vertical Gaze Nystagmus.

Coach and critique the participant-administrator's performance.

Instruct the second participant to check the eyes of the first participant for Lack of Convergence.

Coach and critique the participant-administrator's performance.

Excuse the two participants and thank them for participating.



Demonstration of Pupil Size Estimation and Test for Reaction to Light

Select two other participants to come before the class and instruct one participant to estimate the other's pupils under room light.

- Pupil size estimation under room light.

Coach and critique the participant-administrator's performance.

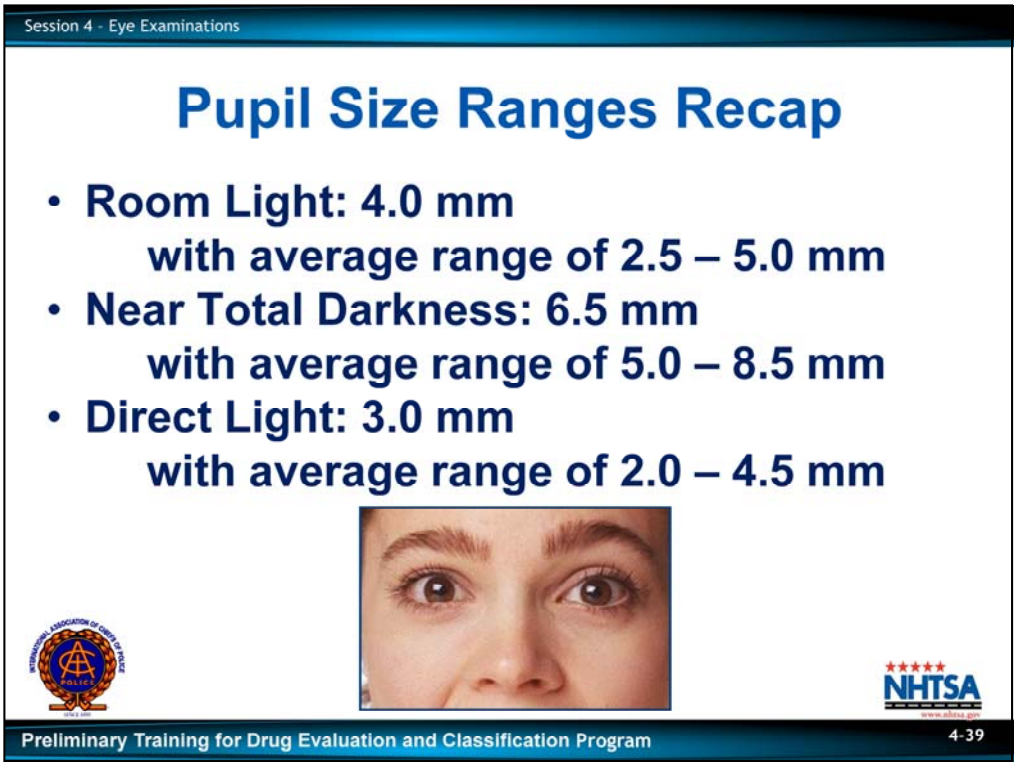
- Darkroom estimations of pupil size.

Instruct the second participant to demonstrate how to perform the dark room estimations of pupil size.

Coach and critique the participant-administrator's performance.

Point out that assessment of the pupil's reaction to light takes place in conjunction with the direct-light estimation.

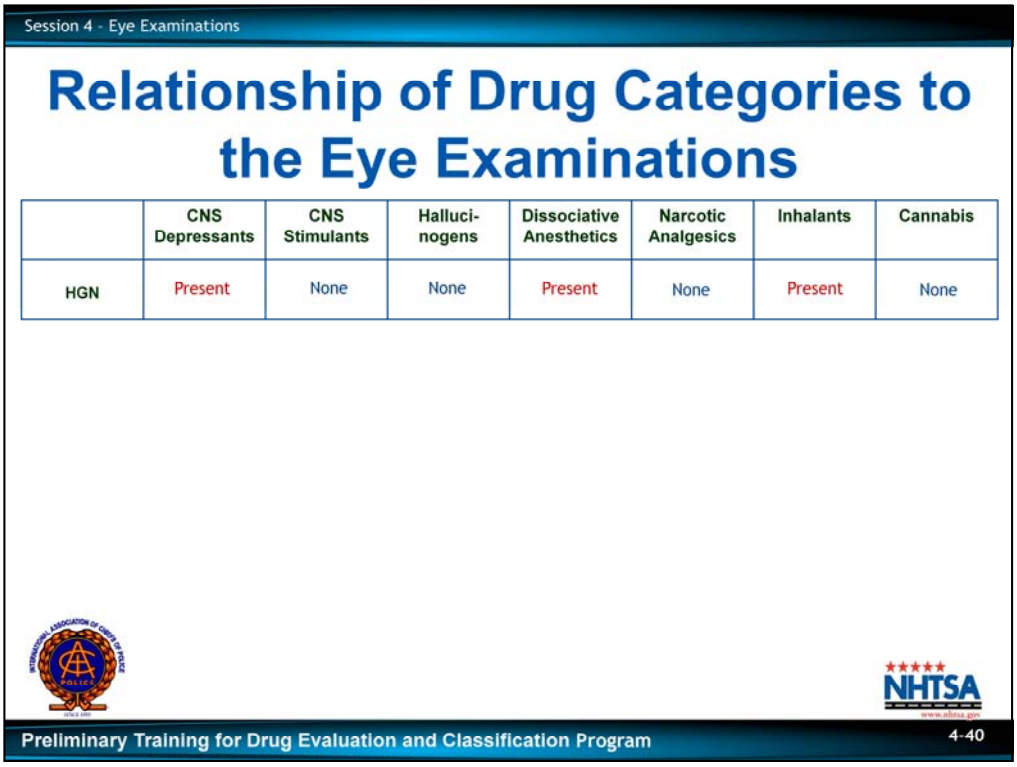
Excuse the two participants and thank them for participating.



To review, the DRE pupil size ranges for non-impaired people are:

- Room Light: 4.0 mm with an average range of 2.5 – 5.0 mm.
- Near Total Darkness: 6.5 mm with an average range of 5.0 – 8.5 mm.
- Direct Light: 3.0 mm with an average range of 2.0 – 4.5 mm.

Solicit participants' comments and questions concerning the demonstrations of the eye examinations and the pupil size ranges.



D. <u>Relationship of Drug Categories to the Eye Examinations</u>

Note: Draw the matrix at the end of this session on the dry erase board or flip-chart at the outset of this segment.

Three of the seven drug categories normally will cause Horizontal Gaze Nystagmus.

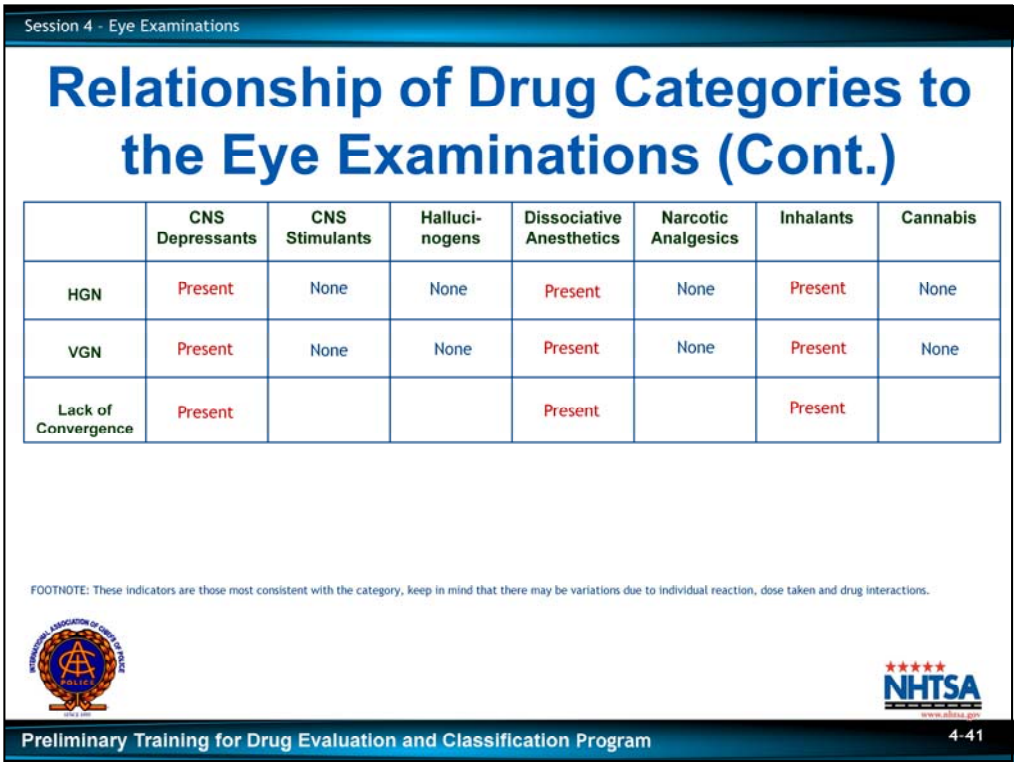
Ask the participants which drug categories normally induce HGN.

- CNS Depressants, Inhalants and Dissociative Anesthetics normally will cause HGN.

Along the HGN line on the matrix, write "PRESENT" under the columns for Depressants, Dissociative Anesthetics and for Inhalants.

- The other four categories normally will not cause HGN.

Write “NONE” on the HGN line under the other columns.



- Any drug that will cause HGN also will cause Vertical Gaze Nystagmus, if a high enough dose of the drug is taken.
- Depressants, Inhalants and Dissociative Anesthetics can all cause Vertical Gaze Nystagmus at higher doses for that individual.

***Along the VGN line, write "PRESENT" under the columns for those three categories*.**

- But if a drug will not cause HGN, then it will not cause Vertical Gaze Nystagmus.

Write "NONE" for VGN under the other four columns.

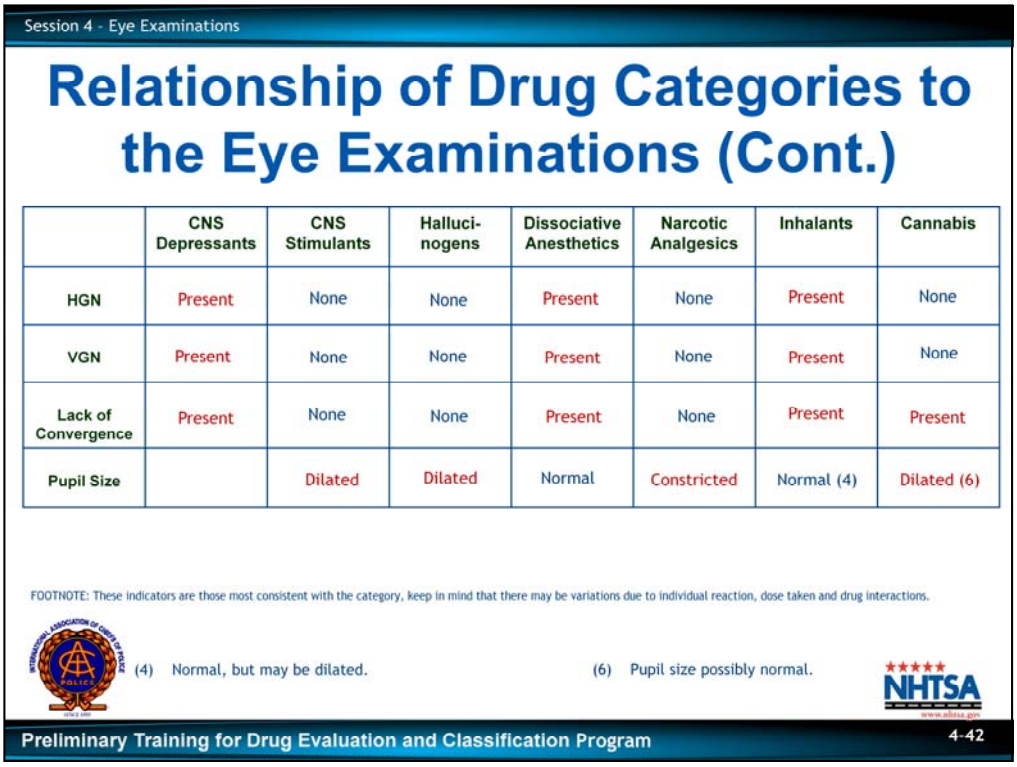
All drugs that cause nystagmus also will cause the eyes to be unable to converge.

- Therefore, Depressants, Inhalants and Dissociative Anesthetics, including PCP and its analogs, usually will cause Lack of Convergence.

Write "PRESENT" along the LACK CONV line under the columns for those three categories.

- Interestingly, there is one category of drug that does not cause nystagmus but that does usually cause Lack of Convergence.

Ask participants which category that is.



- Cannabis usually does cause Lack of Convergence, even though it does not cause nystagmus.

Write "PRESENT" along the LACK CONV line under CANNABIS.

- The other three categories do not cause a Lack of Convergence.

Write "NONE" along the line under the remaining three columns.

An interesting and important fact is that the drugs that cause nystagmus usually don't affect pupil size, and the drugs that don't cause nystagmus usually do affect pupil size.

- CNS Stimulants and Hallucinogens usually cause the pupils to become larger or "dilated."

Write "DILATED" along the PUPIL SIZE line under the columns for CNS Stimulants and Hallucinogens.

- Cannabis may cause the pupils to dilate.

Write "DILATED" under the CANNABIS column; however, explain they may also be "NORMAL" as per Exception #6.

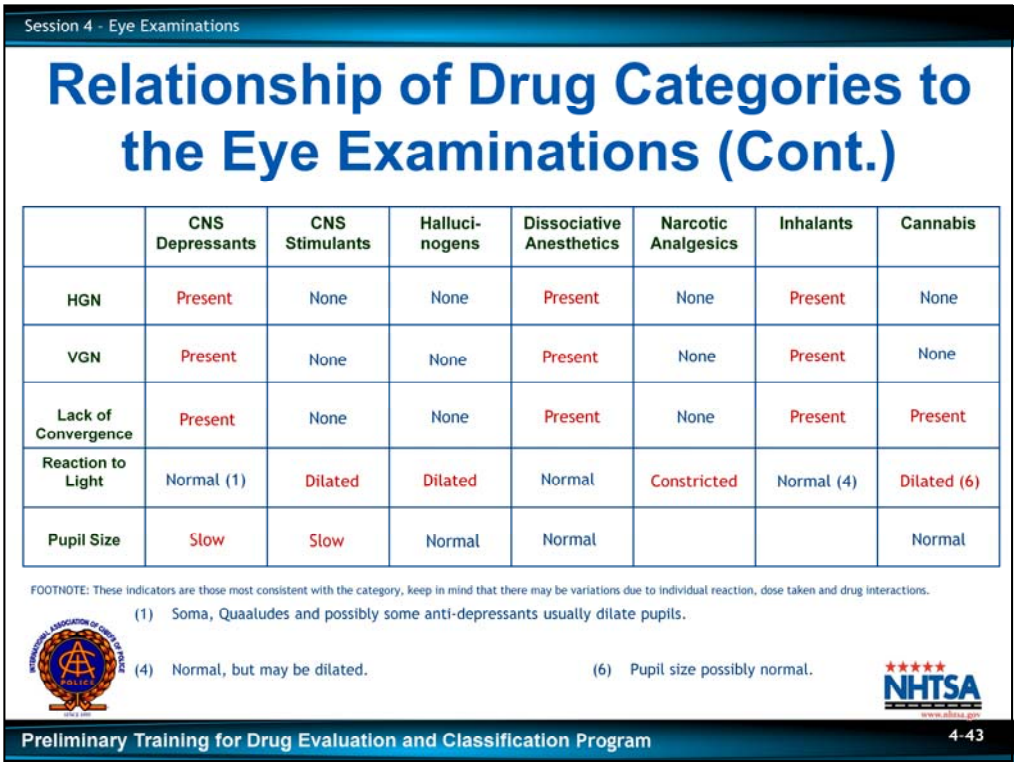
- Narcotic Analgesics usually cause the pupils to become smaller or "constricted."

Write "CONSTRICTED" under the NARCOTICS column.

- Dissociative Anesthetics and most Inhalants tend to leave pupil size in the average ranges.

Write "NORMAL" under the columns for Dissociative Anesthetics and Inhalants. BUT POINT OUT THAT SOME INHALANTS MAY CAUSE PUPIL DILATION as per Exception #4.

Point out that the term "normal" used in the matrix refers to the DRE average ranges for pupil size.



CNS Depressants also usually leave the pupils near the average range.

Write "NORMAL" under the DEPRESSANT column.

- However, there are some exceptions, i.e., depressant drugs that usually dilate the pupils.

Ask participants which depressants cause pupil dilation.

Soma, Quaaludes and some anti-depressants usually dilate pupils.

Put a (1) next to the "NORMAL" in the DEPRESSANT column and explain Exception #1: Soma, Quaaludes and some anti-depressants usually dilate pupils.

Solicit participants' questions and comments.

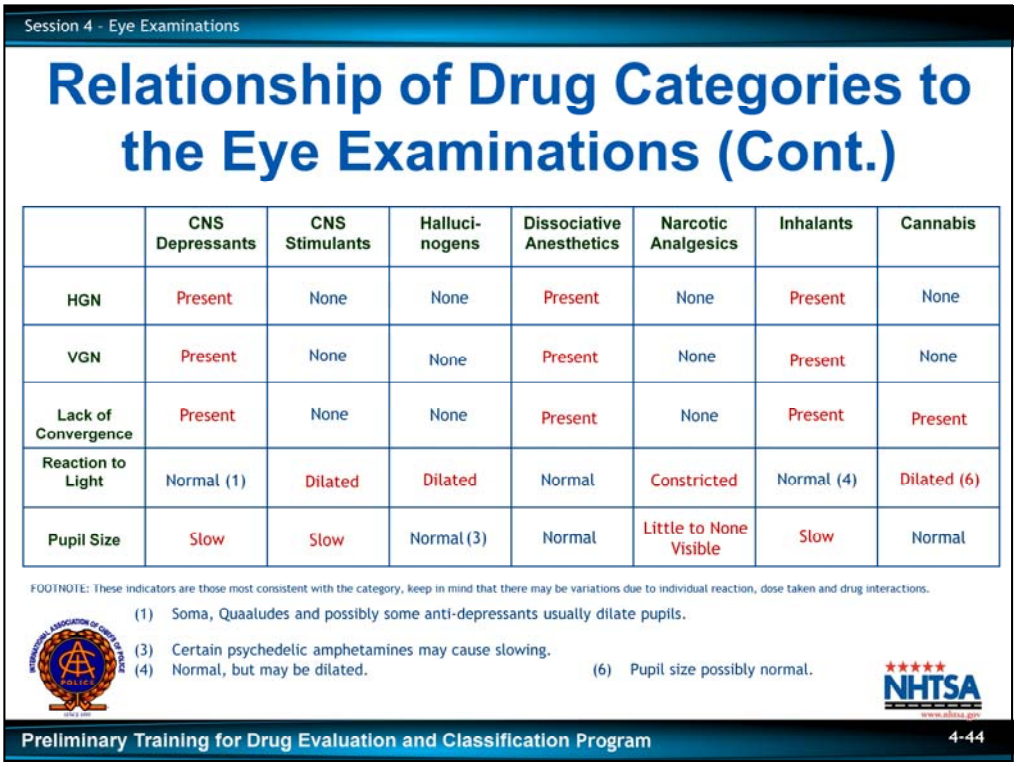
Generally, the pupillary reaction to light is either slowed by the effect of the drug or the pupil reacts normally. The most significant exception is the effect caused by Narcotic Analgesics. Though there is always some reaction to light, in subjects, the constricted pupil caused by narcotics makes it difficult to perceive a change in the pupil size.

- CNS Depressants and CNS Stimulants usually cause a slowed reaction to light.

Write "SLOW" in the column for CNS Depressants and CNS Stimulants.

- With Hallucinogens, Dissociative Anesthetics and Cannabis the pupillary reaction to light is usually normal.

Write "NORMAL" under the columns for Hallucinogens, Dissociative Anesthetics and Cannabis.



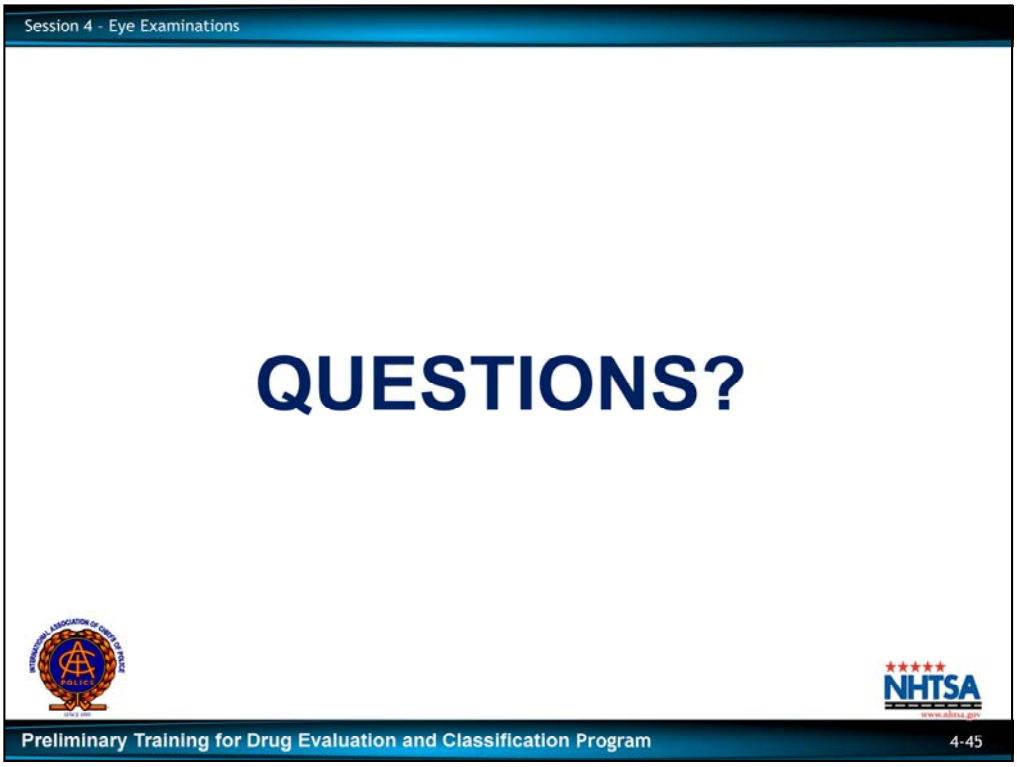
Point out that certain psychedelic amphetamines cause slowing of the pupils as per Exception #3.

Due to the constricted nature of the pupils when under the influence of Narcotic Analgesics, it is difficult to perceive a reaction to light. As a result, we list reaction to light for Narcotic Analgesics as “little or none visible.”

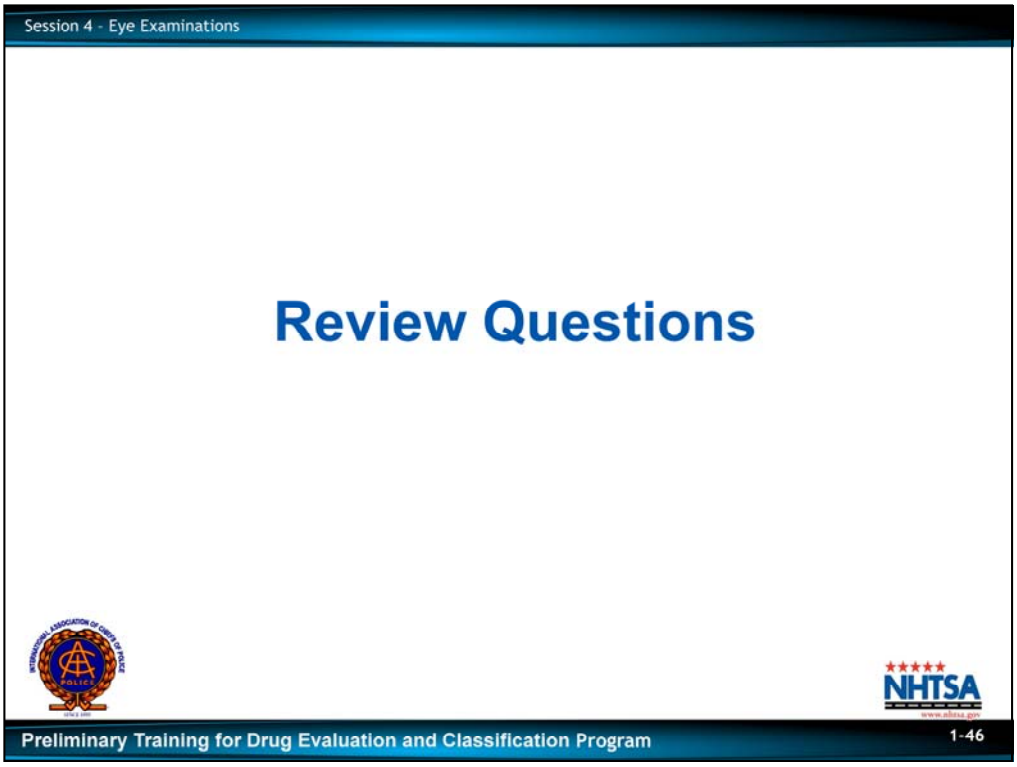
Write “LITTLE OR NONE VISIBLE” under Narcotic Analgesics.

Inhalants will usually slow pupillary reaction.

Write “SLOW” in the column for inhalants.



Solicit participants' comments and questions concerning Eye Examinations.



REVIEW QUESTIONS

1. Name the three clues of impairment associated with Horizontal Gaze Nystagmus.
   1. ***Lack of smooth pursuit***
   2. ***Distinct and sustained nystagmus at maximum deviation***
   3. ***Onset of nystagmus prior to 45 degrees***
2. Complete this formula: BAC = 50 - ????

   Angle of onset
3. Which categories of drugs will not cause Vertical Gaze Nystagmus?

   CNS Stimulants, Hallucinogens, Narcotic Analgesics, Cannabis
4. Which categories of drugs usually will cause Lack of Convergence?

   CNS Depressants, Inhalants, Dissociative Anesthetics, Cannabis
5. Name the three lighting conditions under which a DRE makes pupil size estimations.

   Room light, Near total darkness, Direct Light
6. What is the average range of pupil size for room light?

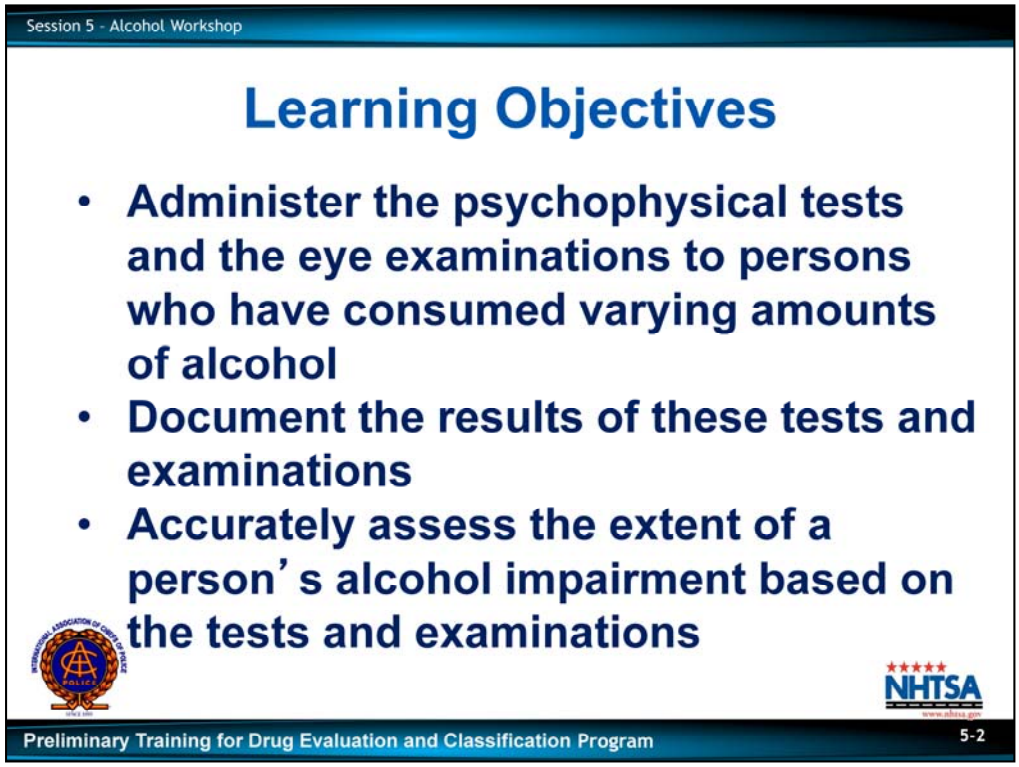
   2.5 – 5.0 mm
7. Which categories of drugs will usually slow down the reaction of the pupils to light?

   CNS Depressants, CNS Stimulants, Inhalants

120 Minutes

Session 5

Alcohol Workshop



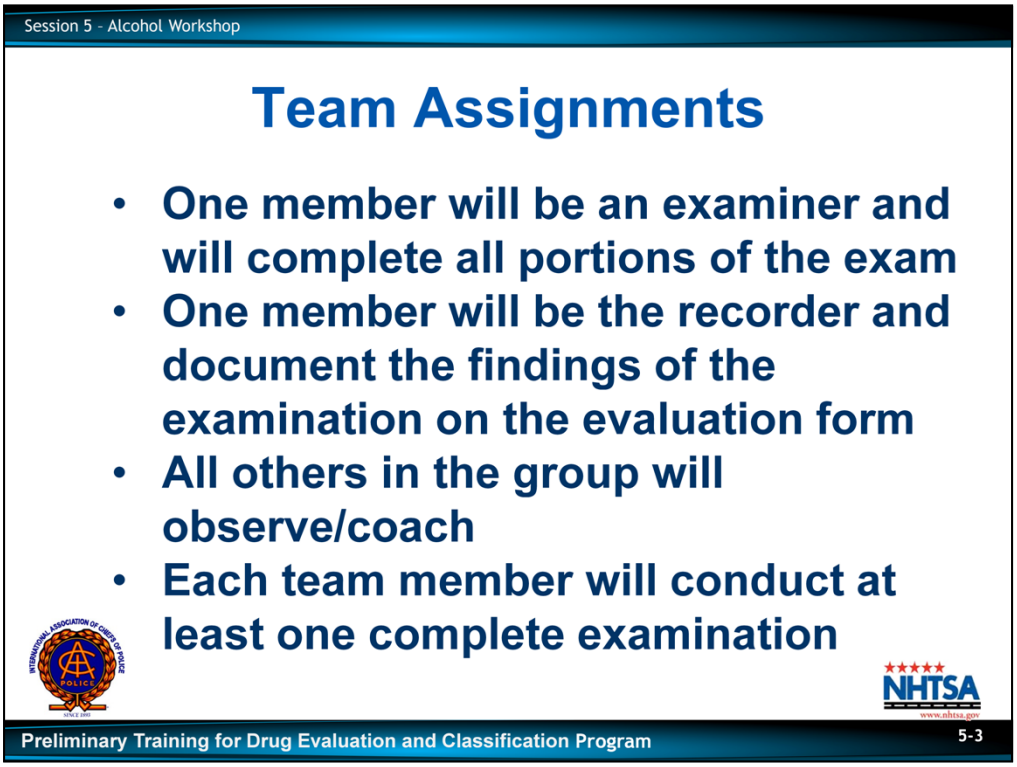
Discuss the objectives of the Alcohol Workshop.

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

- Administer the psychophysical tests and the eye examinations to persons who have consumed varying amounts of alcohol.
- Document the results of these tests and examinations.
- Accurately assess the extent of a person's alcohol impairment based on the tests and examinations.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Assignments and Procedures	Hands-on Practice
B. Testing	Participant-Led Presentations
C. Feedback and Discussion	
D. Alcohol Workshop Checklist	

The main emphasis of the alcohol workshop is to evaluate the participant's proficiency in the administration of SFSTs.



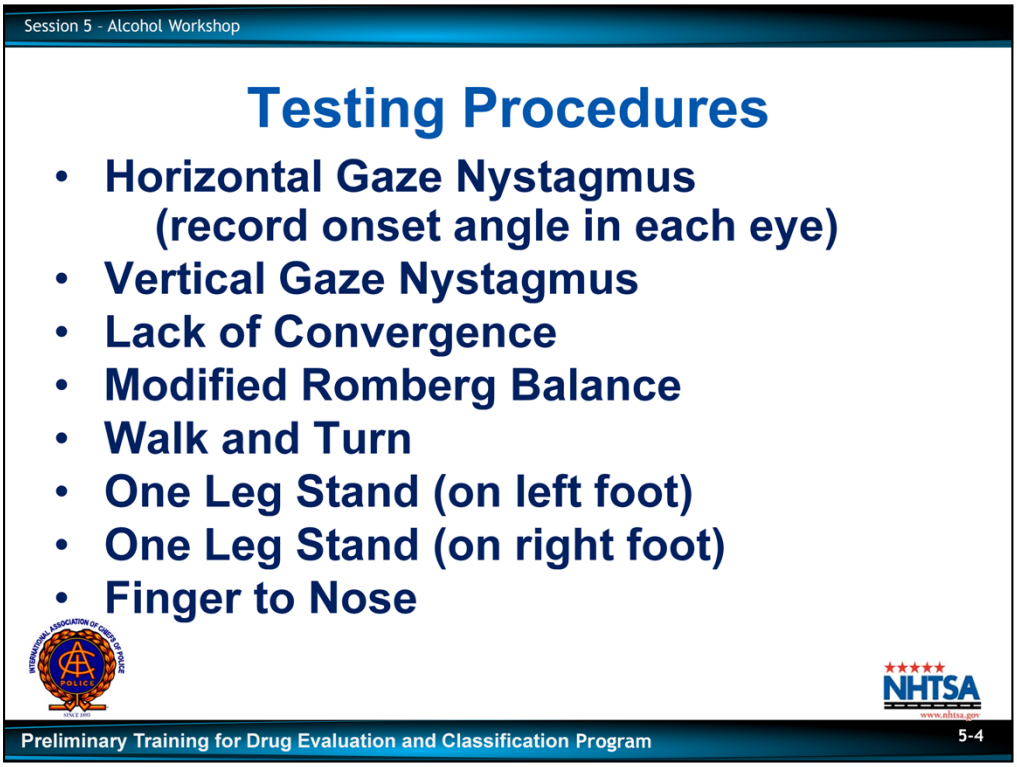
A. Assignments and Procedures

Team Assignments

Group the participants into teams. The number of participants in each team is determined by dividing the total number of participants by the total number of volunteer drinkers. Example: if there are 23 participants and 7 volunteer drinkers, form five teams of three members and two teams of four members.

- ***One member will be an examiner and will complete all portions of the exam.***
- ***One member will be the recorder and document the findings of the examination on the evaluation form.***
- ***All others in the group will observe/coach.***
- ***Each team member will conduct at least one complete examination.***

NOTE: All volunteer drinkers must read and sign the "Statement of Informed Consent" form prior to receiving any alcohol.



Explanation of Testing Procedures

Each team will conduct the following sequence of tests and examinations on each volunteer:

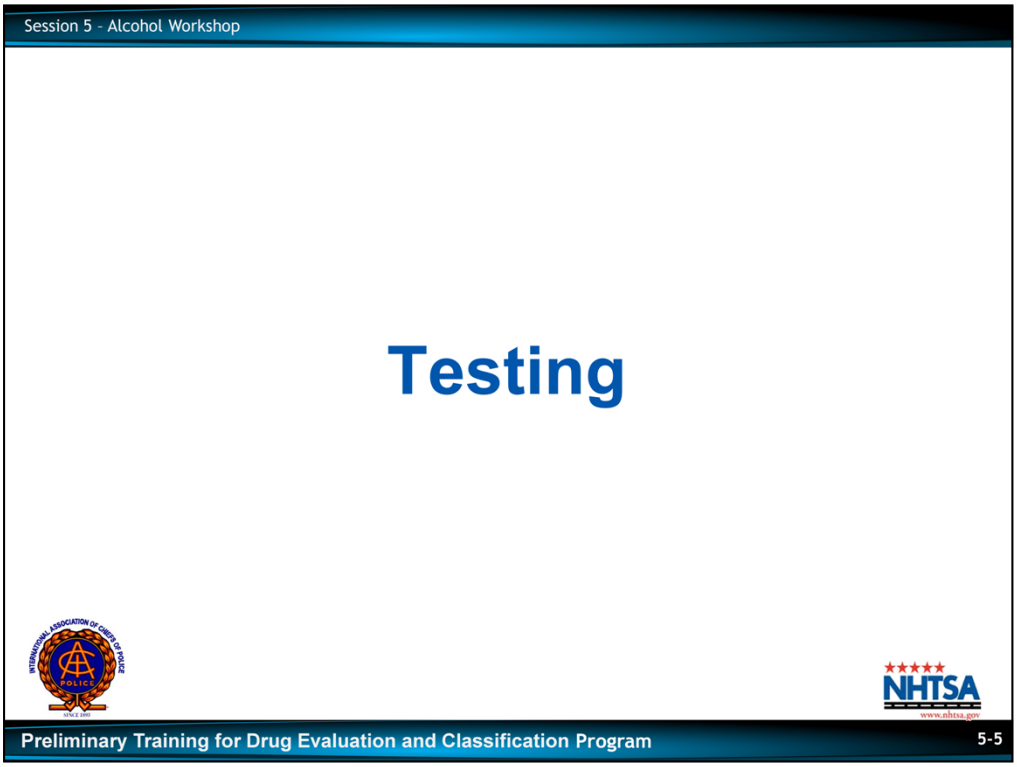
Write the sequence of tests and examinations on dry erase or flip-chart.

- HGN (record angle of onset in each eye).
- Vertical Gaze Nystagmus.
- Lack of Convergence.
- Modified Romberg Balance.
- Walk and Turn.
- One Leg Stand (standing on left leg).
- One Leg Stand (standing on right leg).
- Finger to Nose

Emphasize that the team will administer each test only once to each volunteer, e.g., only one member of a team will administer the HGN test to a particular volunteer.

Emphasize that the tests and examinations are to be given in the order listed for all volunteers.

Teams will record the results of each test and examination.
Upon completing the test and examinations, the team members will record their best estimate as to the volunteer's BAC.
Solicit questions about the testing procedures.



B. Testing

Hand out test recording forms to the teams, if available.

Monitor the testing to ensure compliance with the procedures.

Always allow a team to complete the full sequence of tests and examinations before sending the volunteer to another team.

Offer coaching and constructive criticism as appropriate.

Transcribe on the board the matrix found at the end of this session to be completed during the discussion phase of the workshop.

C. Feedback and Discussion

Transcribe on the board the matrix found at the end of this session to be completed during the discussion phase of the workshop.

For each volunteer, select one team to report in detail on each test and examination administered to that volunteer.

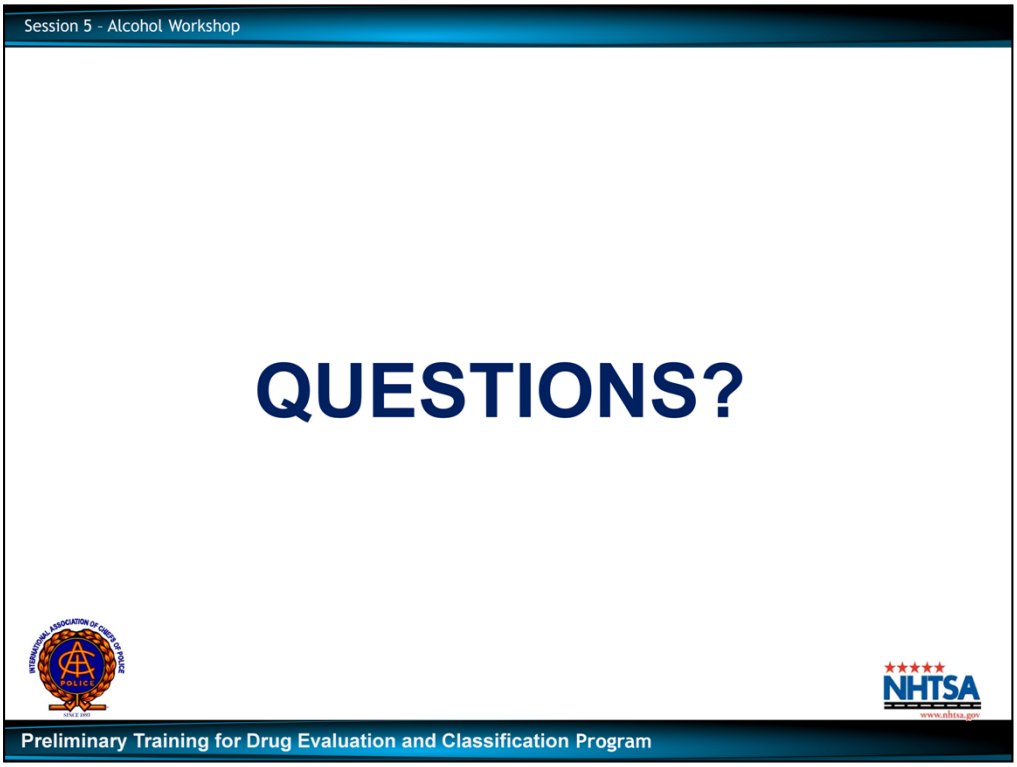
Call upon participants to report their best estimates as to that volunteer's BAC.

Inform the participants of the results of that volunteer's breath tests.

Continue this process until all volunteers have been reported upon.

Solicit participants' questions and comments.

D. Alcohol Workshop Checklist

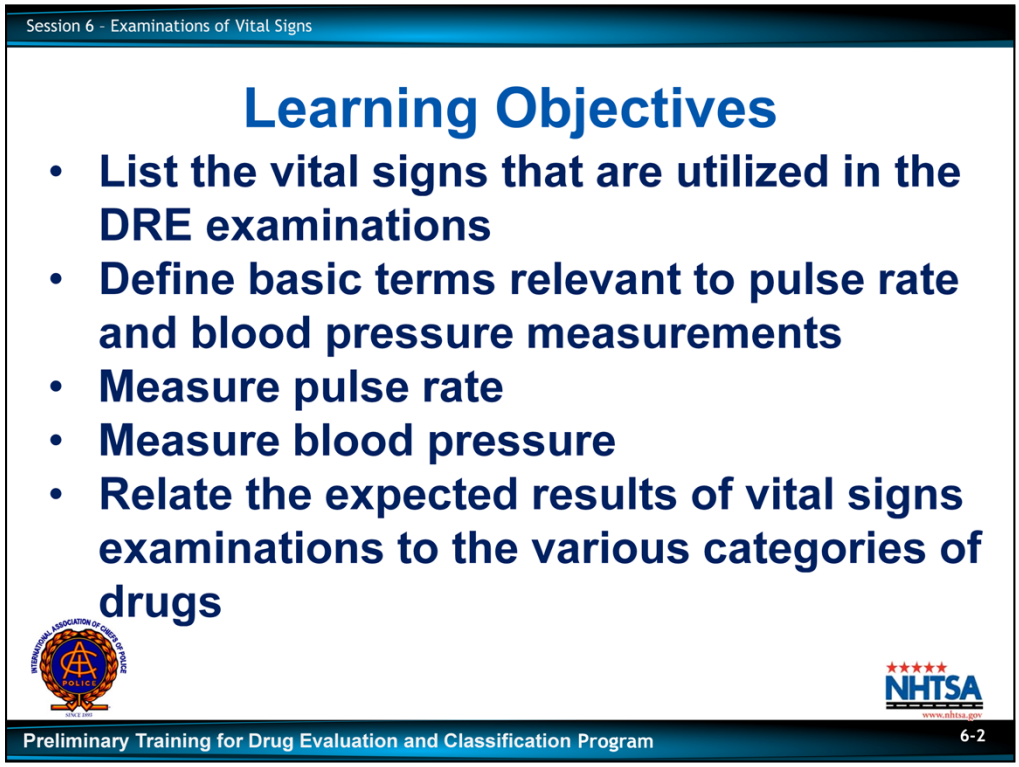


Solicit participants' questions about the Alcohol Workshop.

180 Minutes

Session 6

Examinations of Vital Signs

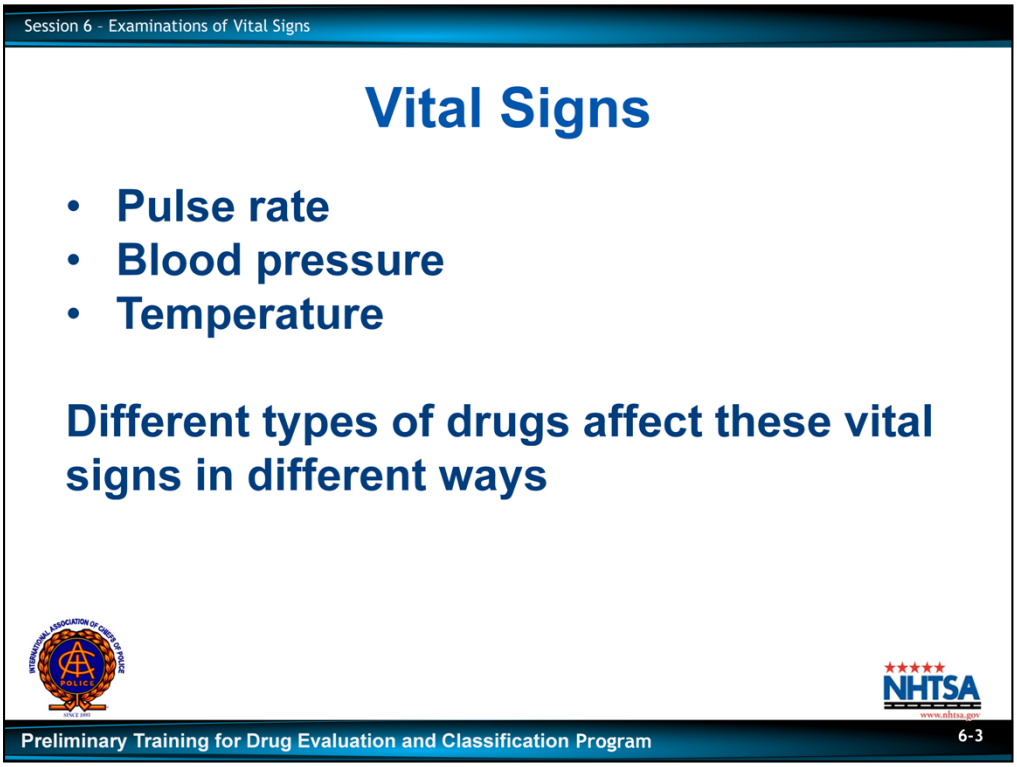


Briefly review the objectives, content and activities of this session.

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

- List the vital signs that are utilized in the DRE examinations.
- Define basic terms relevant to pulse rate and blood pressure measurements.
- Measure pulse rate.
- Measure blood pressure.
- Relate the expected results of vital signs examinations to the various categories of drugs.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Purposes of the Examinations	Instructor-Led Presentations
B. Procedures and Cues	Participant-Led Demonstrations
C. Demonstrations	Hands-on Practice
D. DRE Ranges of Vital Signs	
E. Relationship of Drug Categories to the Vital Signs Examinations	
F. Practice	



A. <u>Purposes of the Examinations</u>

The vital signs that are relevant to the drug influence evaluation process include:

Point out these vital signs on the wall chart.

- Pulse rate
- Blood pressure
- Temperature

Different types of drugs affect these vital signs in different ways.

Certain drugs tend to “speed up” the body and elevate these vital signs.

Clarification:

- Pulse may quicken
- Blood pressure may rise
- Temperature may rise

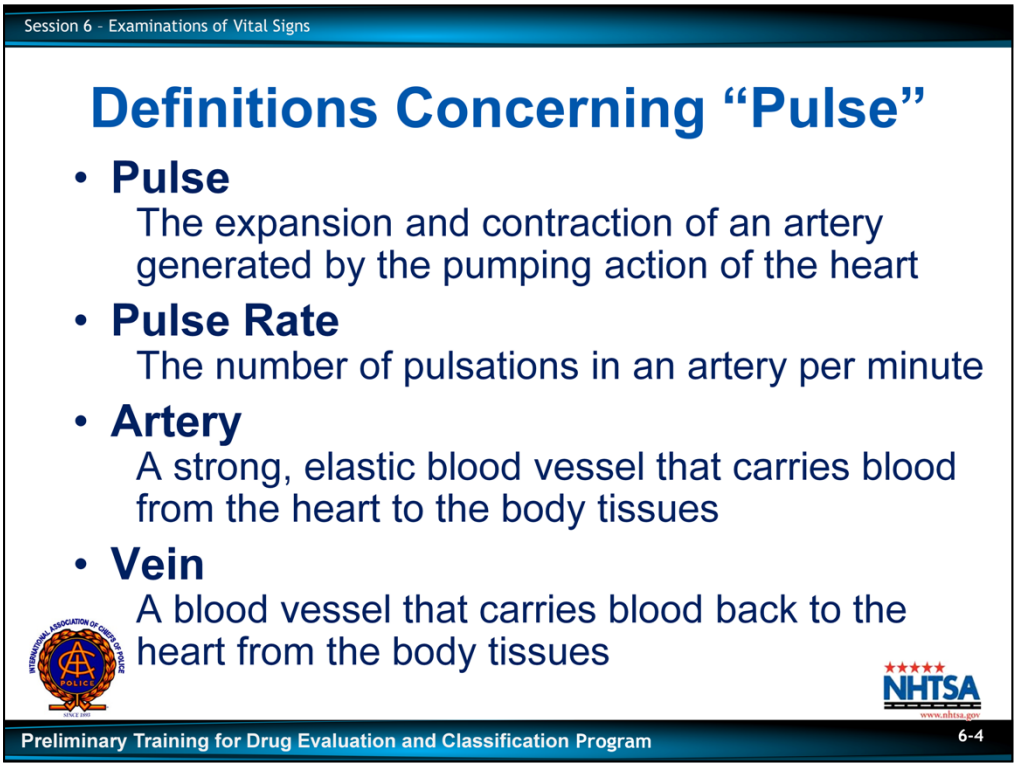
Other drugs tend to “slow down” the body and lower these vital signs.

Clarification:

- Pulse may slow
- Blood pressure may drop
- Temperature may fall

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

Point out that for purposes of standardization, the pulse and blood pressure readings will be obtained using the left arm if at all possible.



B. Procedures and Cues

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.

Point out that pulse rate is equal to the number of contractions of the heart per minute.

- An artery is a strong, elastic blood vessel that carries blood away from the heart.
- A vein is a blood vessel that carries blood back to the heart.
- When the heart contracts, it squeezes blood out of its chambers into the arteries.
- The surging blood causes the arteries to expand.

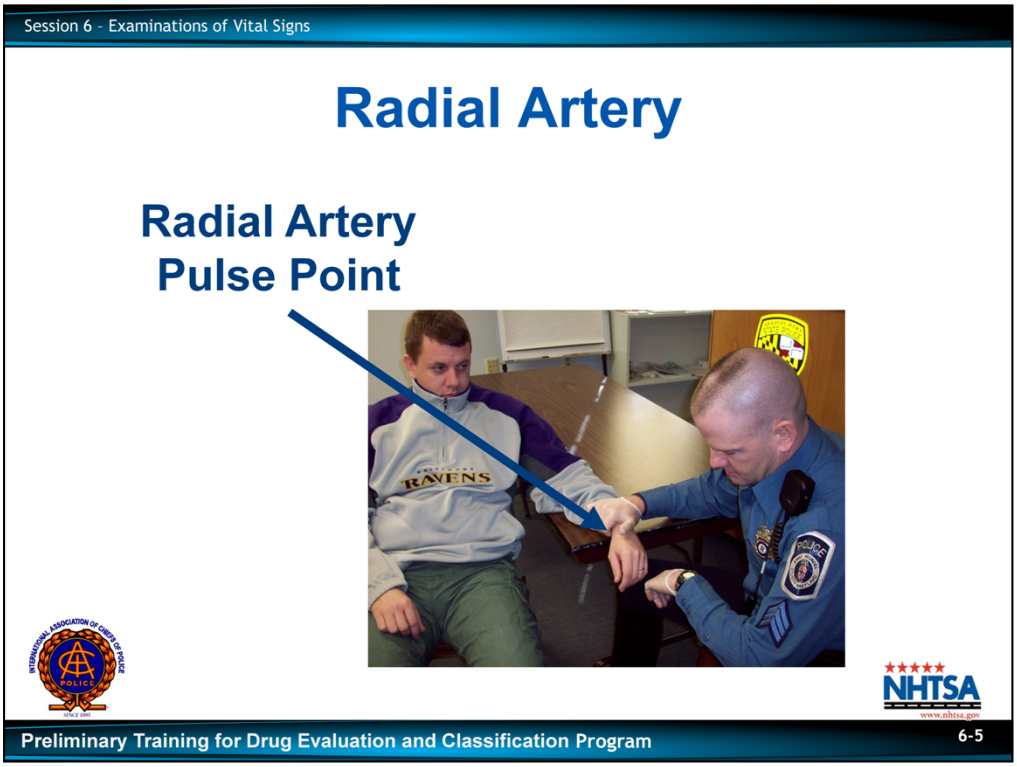
By placing your fingers on the skin next to an artery and pressing down, you can feel the artery expand as the blood surges through.

Emphasize: The "surge" can be felt as the blood is squeezed from the heart through an artery. The pulse cannot be felt in a vein.

By keeping your fingers on the artery and counting the number of pulses that occur in one minute, you will measure the pulse rate.

Demonstrate this, by holding your fingers on your own radial artery.

Pulse is easy to measure, once you locate an artery close to the surface of the skin.



Radial Artery

One convenient pulse point involves the radial artery.

•The radial artery can be located in or near the natural crease of the wrist, on the side of the wrist next to the thumb.

•Point to the radial artery pulse point on your own wrist.

•Hold your left hand out, with the palm down.

Demonstrate this.

•Place the tips of your right hand's index finger and middle finger into the crease of your left wrist, and exert a slight pressure.

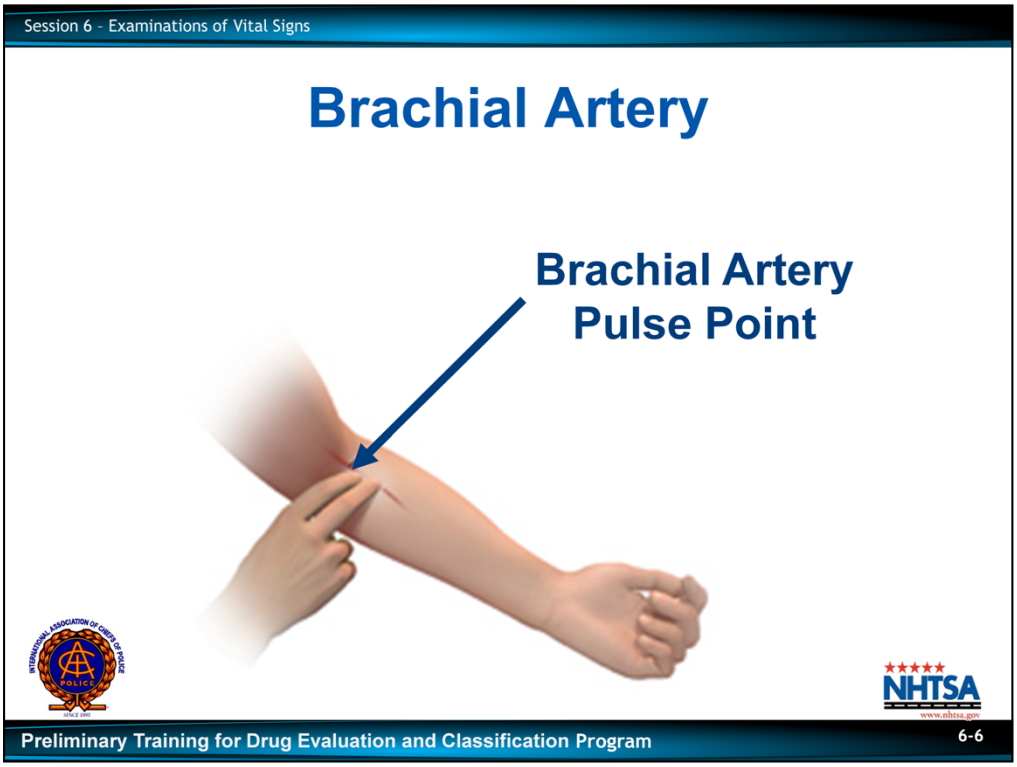
Demonstrate this.

•Allow your left hand to curl downward.

Demonstrate this.

• You should be able to feel the pulse in your radial artery.

Ask participants whether they can feel their pulses. Coach any participants who have difficulty in locating the pulse.



Brachial Artery

Another pulse point involves the brachial artery.

Point to the brachial artery pulse point in your own arm.

•The brachial artery can be located in the crook of the arm, halfway between the center of the arm and the side of the arm closest to the body.

Instruct participants to roll up their sleeves, if necessary, to expose their brachial artery pulse points.

•Hold your left hand out, with the palm up.

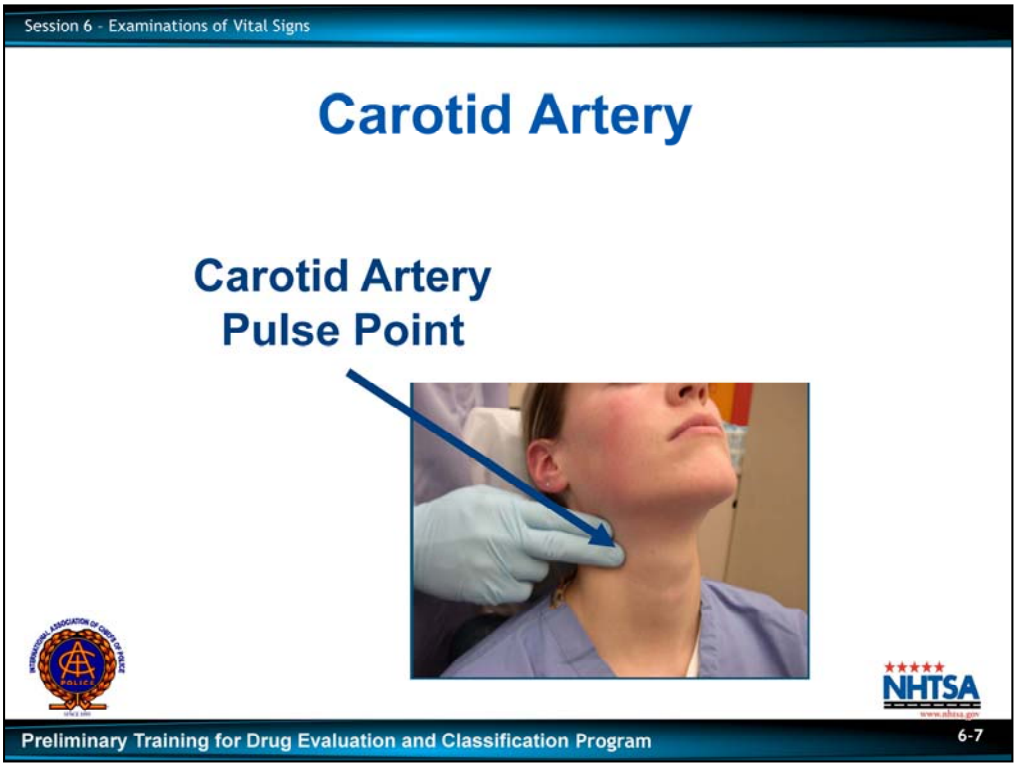
Demonstrate this.

•Place the tips of your right hand's index and middle fingers into the crook of your left arm, close to the body, and exert a slight pressure.

Demonstrate this.

•You should be able to feel the pulse in your brachial artery.

Ask participants whether they can feel their pulses. Coach any participant who has difficulty locating the pulse.



Carotid Artery

Another pulse point involves the carotid artery.

Point out the carotid artery pulse point on your own neck.

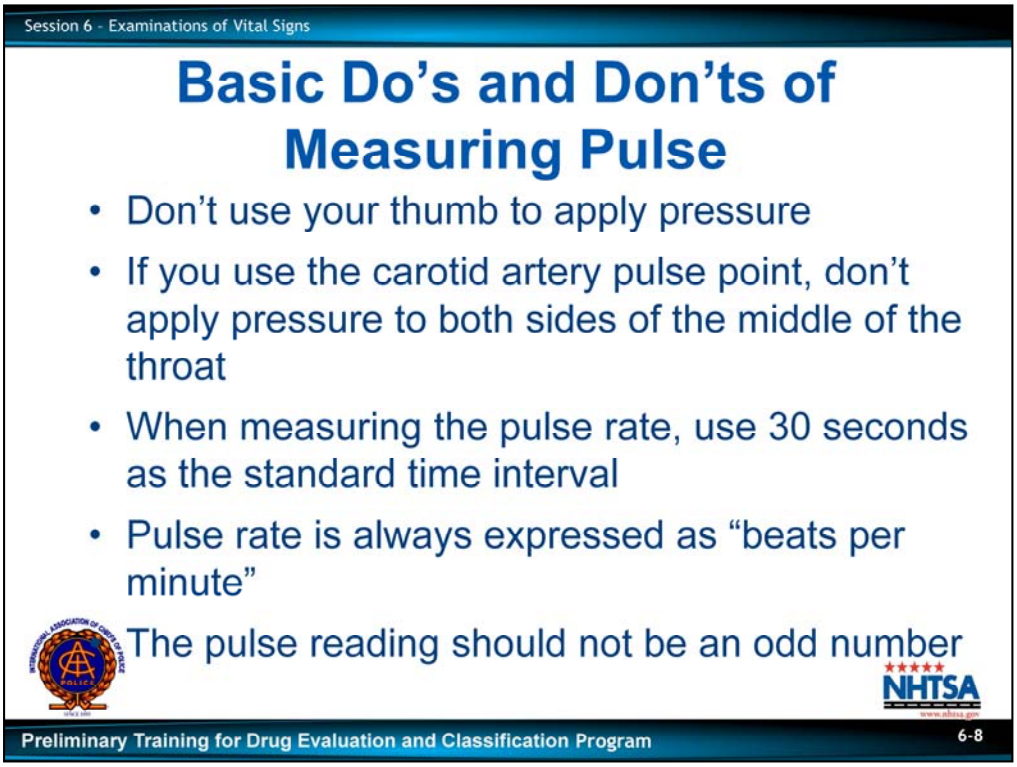
- The carotid artery can be located in the neck, on either side of the middle of the throat ("Adam's Apple").

Place the tips of your right hand's index and middle fingers alongside the right side of your "Adam's Apple."

Demonstrate this.

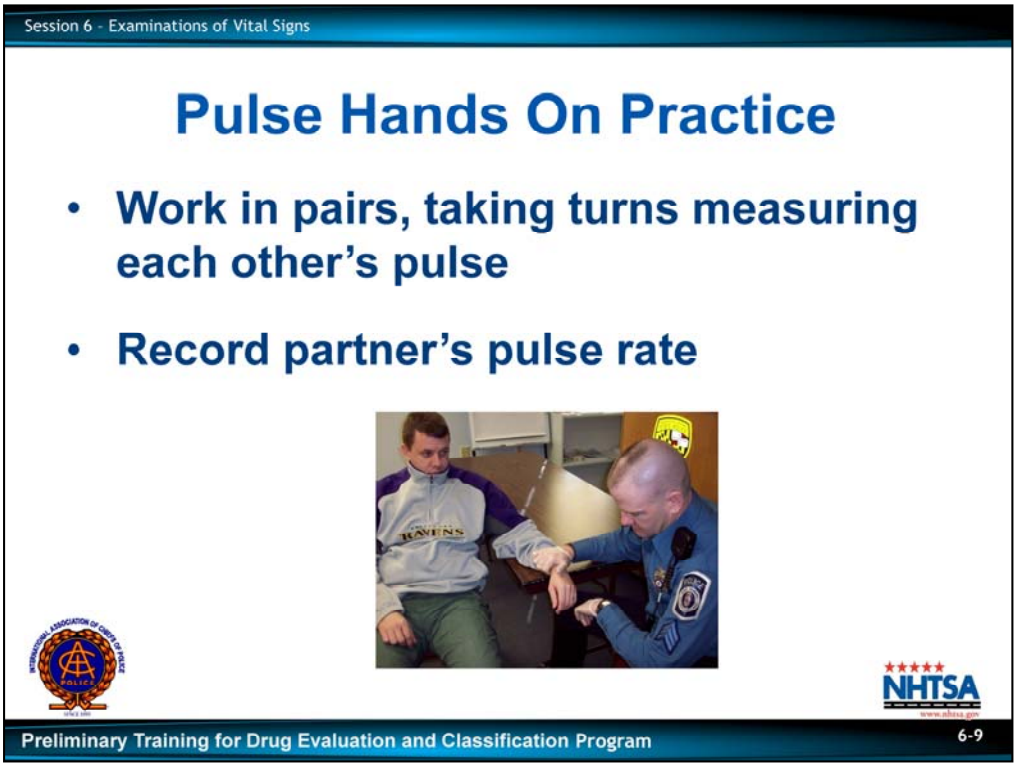
- You should be able to feel the pulse in your carotid artery.

Ask participants whether they can feel their pulses. Coach any participant who has difficulty locating the pulse.



Basic Do's and Don'ts of Measuring Pulse

- Don't use your thumb to apply pressure while measuring a subject's pulse.
- ***Point out that there is an artery located in the thumb. If you apply pressure with the thumb, you may be actually measuring your own pulse instead of the subject's.***
- If you use the carotid artery pulse point, don't apply pressure to both sides of the middle of the throat: this can cut off the supply of blood to the brain.
- When measuring the pulse rate, use 30 seconds as the standard time interval.
- ***Point out that pulse rate is always expressed as "beats per minute." If you count the beats during an interval of 30 seconds, you must double the result to obtain the pulse rate. The pulse reading should not be an odd number.***



Participants' Initial Practice at Measuring Pulse Rate

Instruct participants to work in pairs, taking turns measuring each other's pulse.

Tell participants to record on paper their partner's pulse rates.

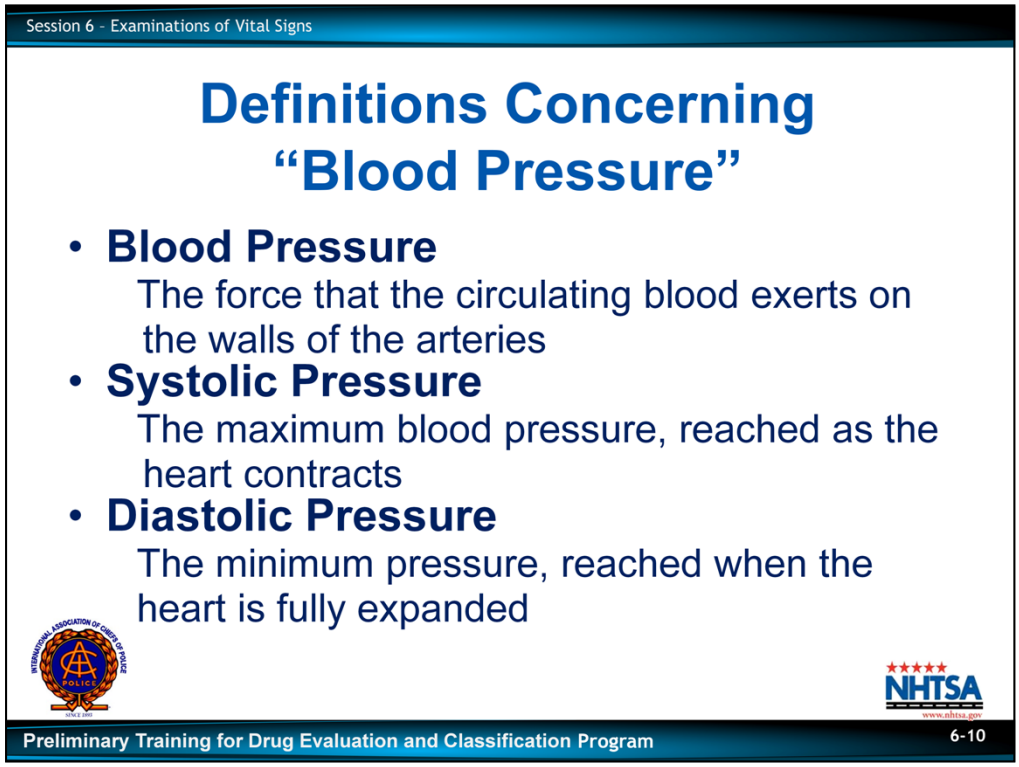
Print the following lists on the dry erase board or flip-chart.

Monitor, coach and critique the participants' practice. Allow the practice to continue for only about 5 minutes.

50 or less____	76-78____
52-54____	80-82____
56-58____	84-86____
60-62____	88-90____
64-66____	92-94____
68-70____	96-98____
72-74____	100+____

Tabulate the numbers of participants whose pulse rates were in each of the listed intervals.

Point out that the average range of pulse rate for DRE purposes is 60-90 beats per minute.



Measurement of Blood Pressure

Blood pressure is the force that the circulating blood exerts on the walls of the arteries.

- Blood pressure changes constantly as the heart contracts and relaxes.
- Blood pressure reaches its maximum as the heart contracts and sends the blood surging through the arteries. This is called the systolic pressure.
- Blood pressure reaches it minimum when the heart is fully expanded. This is called the diastolic pressure.
- It is always necessary to measure and record both the systolic and diastolic blood pressure.

Memory aid:

Systolic: "S" for "Superior"

Diastolic: "D" for "Down"

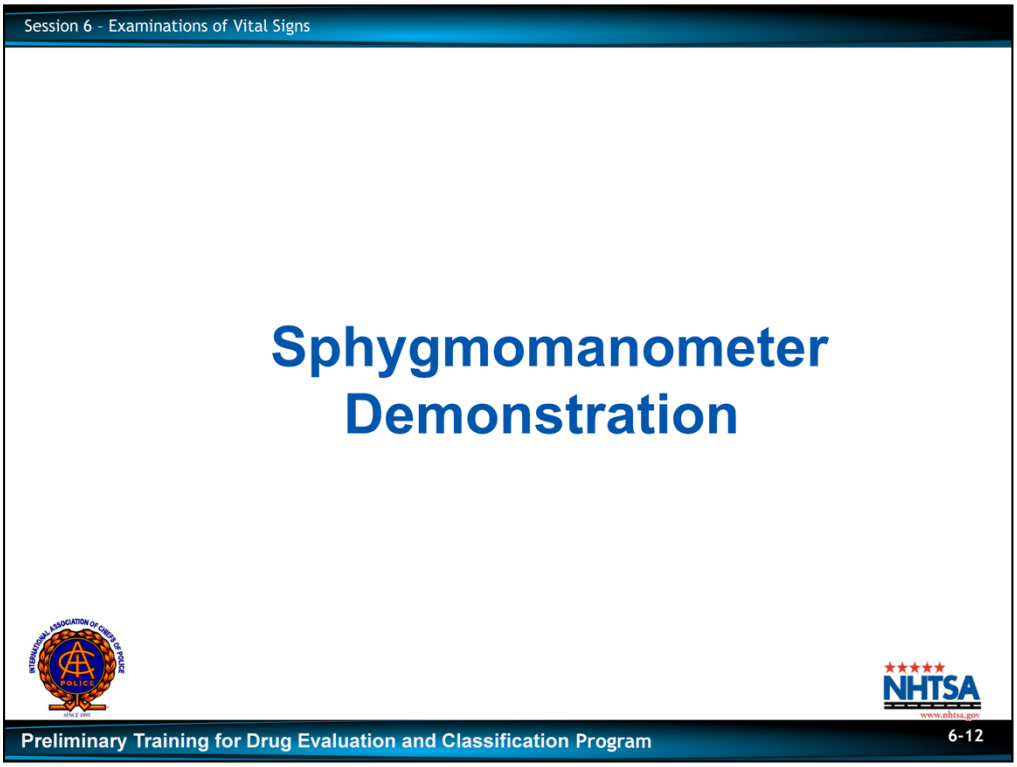
Remind participants that "systolic" is the higher number, "diastolic" is the lower number.

The device used for measuring blood pressure is called a sphygmomanometer.

Exhibit a sphygmomanometer.

Write "SPHYGMOMANOMETER" on the dry erase board or flip-chart.

The sphygmomanometer has a special cuff that can be wrapped around the subject's arm and inflated with air pressure.



Select a participant to come before the class. Have the participant sit in a chair facing the class and roll up a sleeve, if necessary, to expose the left bicep.

Wrap the cuff around the participant-volunteer's arm and inflate it.

- As the pressure in the cuff increases, the cuff squeezes tightly on the arm.

Ask the participant-volunteer whether they can feel the pressure of the cuff.

- When the pressure gets high enough, it will squeeze the artery completely shut.

Ask participants: "What artery is located in the crook of the arm?" (Point to that location on the participant-volunteer's arm).

- Blood will cease flowing through the brachial artery. Since the brachial artery "feeds" the radial artery, blood will also cease flowing through the radial artery.

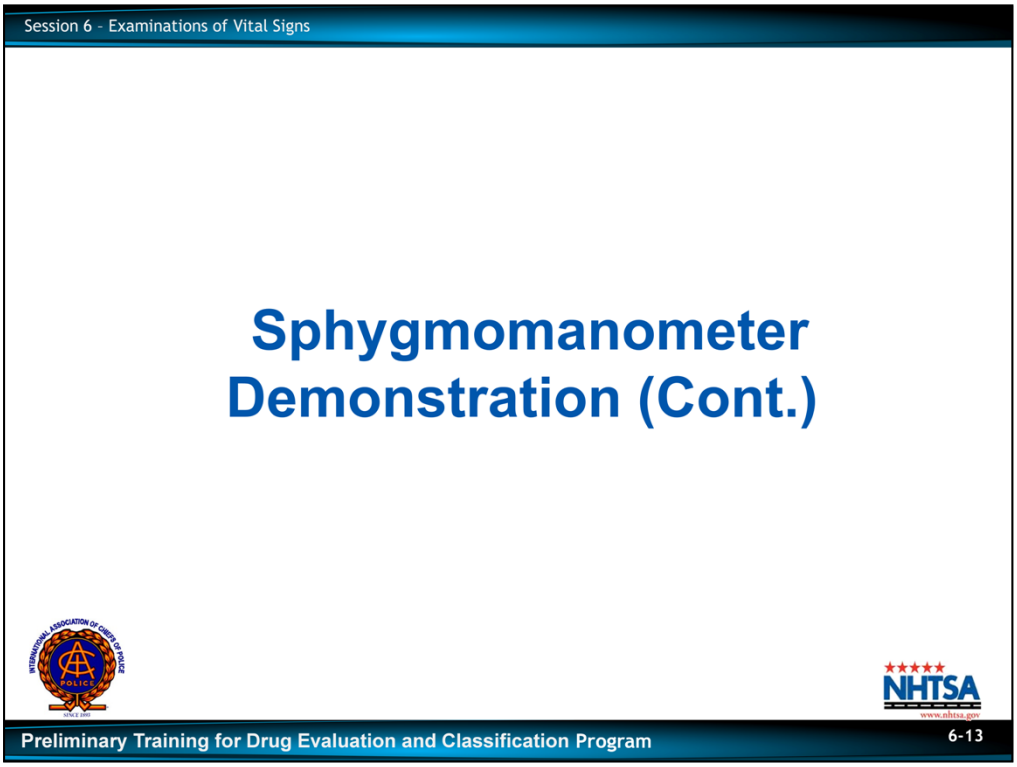
Release the pressure in the cuff on the participant-volunteer's arm.

If we slowly release the air in the cuff, the pressure on the arm and on the artery will start to drop.

- Eventually, the pressure will drop enough so that blood will once again start to flow through the artery.

Ask participants: "How far must the pressure in the cuff drop before the blood can start to squeeze through the artery?"

- Blood will start flowing in the artery once the pressure inside the artery equals the pressure outside the artery.

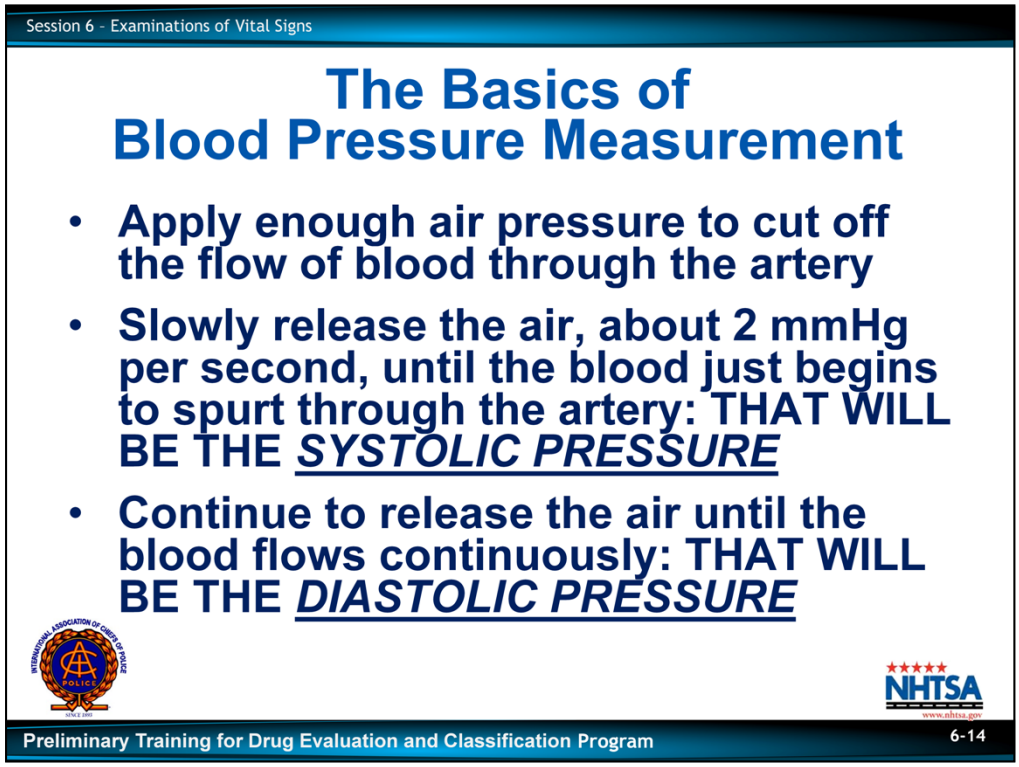


Ask participants: "What would happen if we allowed the pressure in the cuff to drop down to the systolic level, and held the air pressure at that level?"

- The two pressures will become equal when the air pressure in the cuff drops down to the systolic pressure.
- Point out that the blood would spurt through the artery each time the heart contracted, but would cease flowing when the heart expanded.

Ask participants: "How far down must the air pressure in the cuff drop before the blood will flow through the artery continuously?"

- When that happens, blood will spurt through the artery each time the heart contracts.
- Once the air pressure in the cuff drops down to the diastolic level, the blood will flow continuously through the artery.



Overview of Procedures for Measuring Blood Pressure

- Apply enough air pressure to the cuff to cut off the flow of blood through the artery (approximately 180 mmHg).

Demonstrate, using the participant-volunteer (apply pressure to the cuff). As DREs we usually inflate the cuff until the manometer shows a reading of approximately 180 mmHg.

- Slowly release the air pressure until the blood just begins to spurt through the artery: that level will be the systolic pressure.
- Slowly release the pressure in the cuff.
- Emphasize that the pressure should drop at approximately 2 mmHg per second (5 sec for each 10 mm drop).
- Continue to release the air pressure until the blood flows continuously through the artery: that level will be the diastolic pressure.

Ask participants:

"How can we tell when the blood starts to spurt through the artery?"

"How can we tell when the blood is flowing continuously through the artery?"

We can listen to the spurting blood, using a stethoscope.

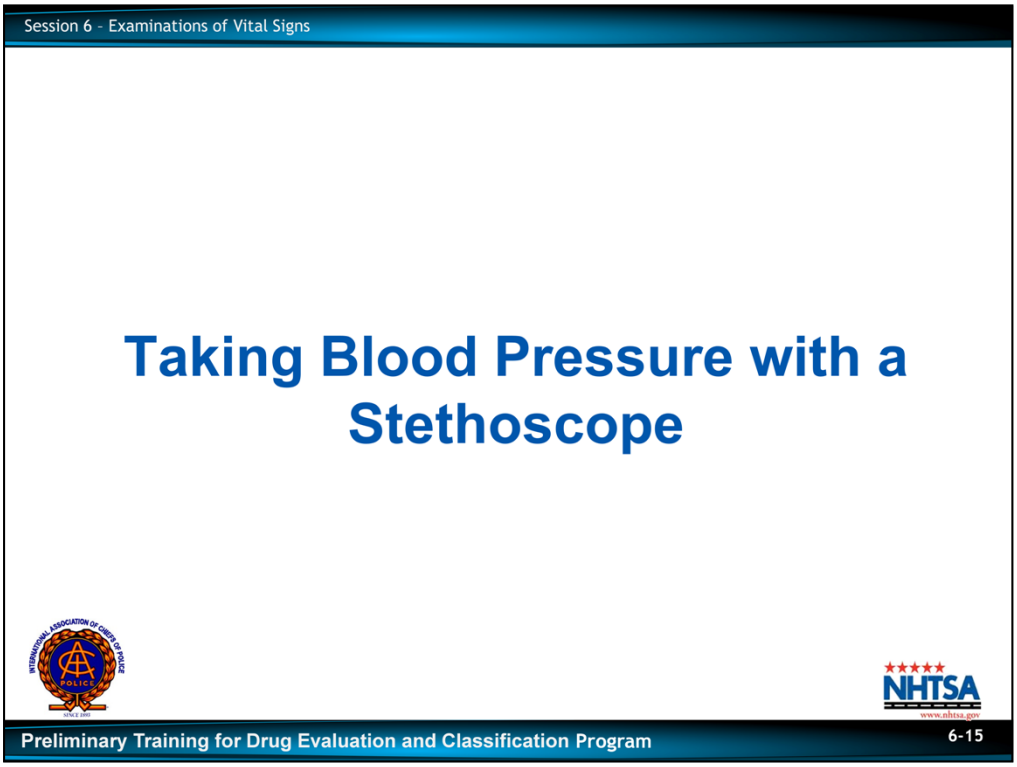


Exhibit a stethoscope.

•Apply the stethoscope to the skin directly above the artery.

Demonstrate using the participant-volunteer.

•Apply pressure to the cuff, enough to cut off the flow of blood.

•Inflate the cuff on the participant-volunteer's arm.

•When no blood is flowing through the artery, we hear nothing through the stethoscope.

•Slowly release the air from the cuff, letting the pressure start to drop.

•Release the air in the cuff.

•When we drop to the systolic pressure, we start to hear a spurting sound.

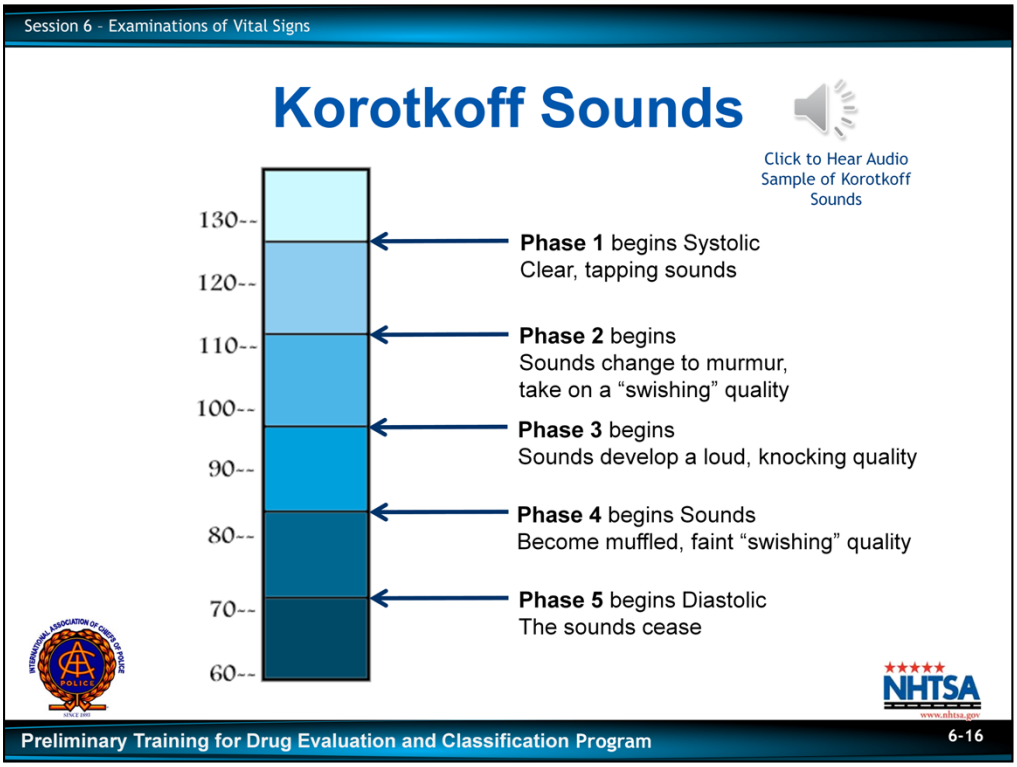
•**Note: This begins as a clear, tapping sound.**

•As we continue to allow the air pressure to drop, the surges of blood become steadily longer.

•**Note: The sounds take on a swishing quality and become fainter.**

•When we drop to the diastolic pressure, the blood slows steadily and all sounds cease.

***Excuse the participant-volunteer and thank him or her for participating*.**



Korotkoff Sounds

The sounds that we listen to are called Korotkoff Sounds. Named after Dr. Nikolai Korotkoff, a Russian physician who introduced the method of determining blood pressure in 1905.

Phase 1: the first appearance of clear, tapping sounds that gradually increase in intensity.

The beginning of Phase 1 corresponds to the systolic pressure.

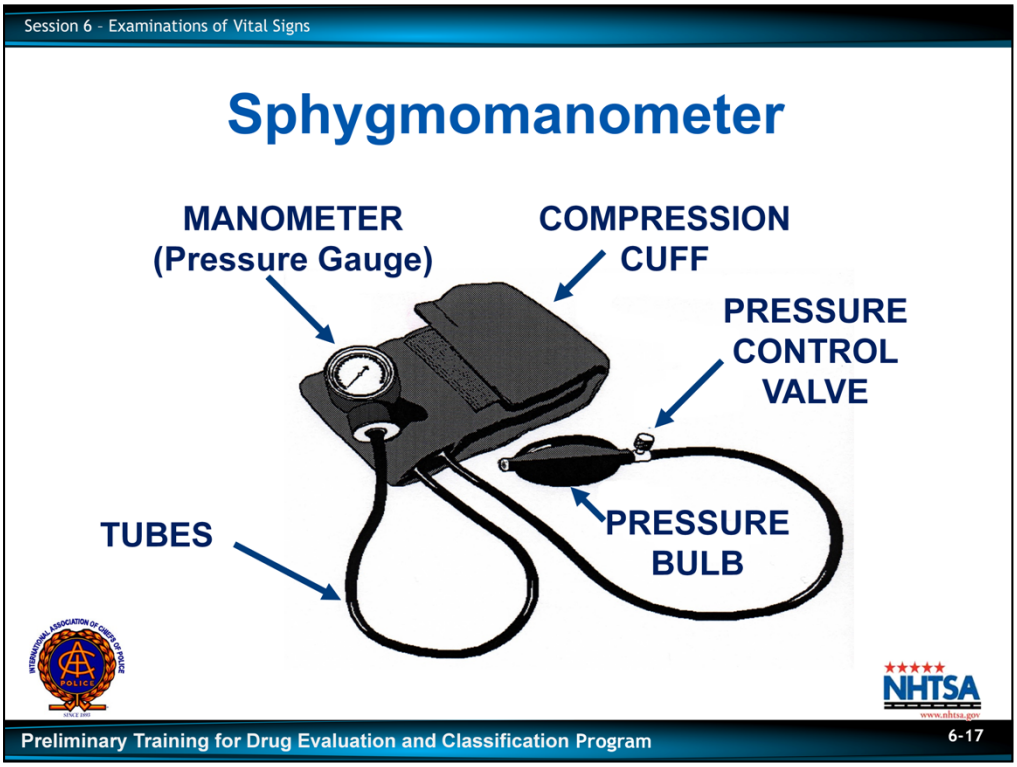
Phase 2: the sounds change to a murmur and take on a swishing quality.

Phase 3: the sounds develop a loud, knocking quality (not quite as clear as Phase 1).

Phase 4: the sounds suddenly become muffled and again have a faint swishing quality.

Phase 5: the sounds cease.

The beginning of Phase 5 corresponds to the diastolic pressure.



Hand out stethoscopes and sphygmomanometers (one per each participant is desirable; at minimum, there should be one for every four participants).

Familiarization with the Sphygmomanometer

The compression cuff contains an inflatable rubber bladder.

Point out the components of the sphygmomanometer

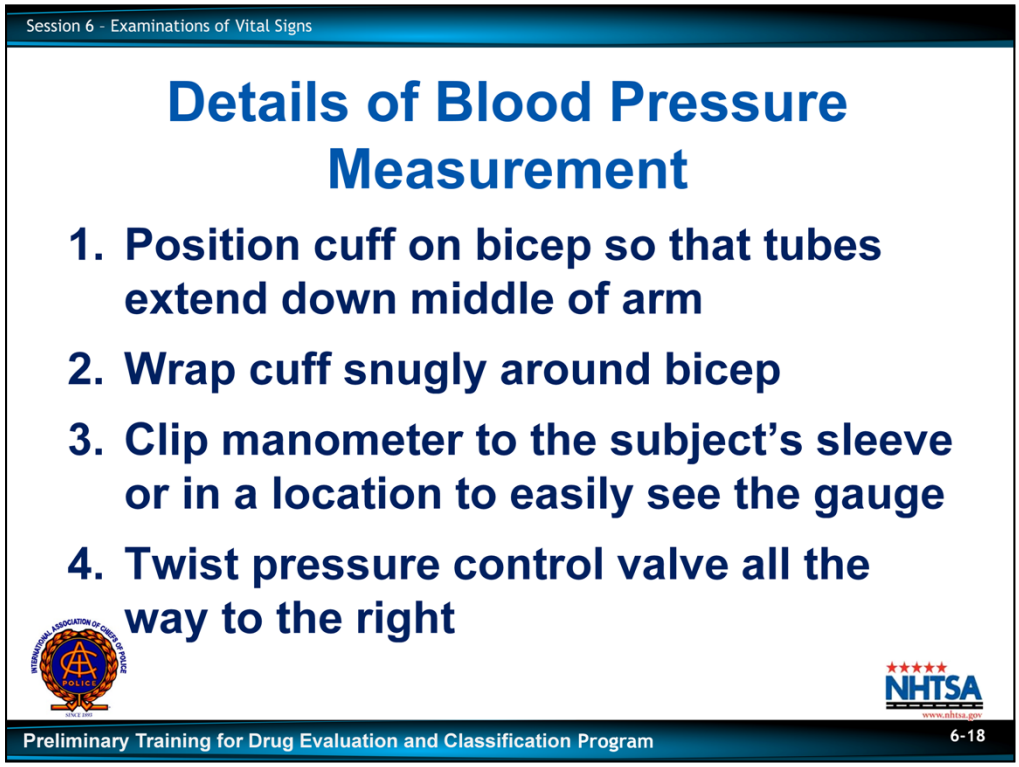
A tube connects the bladder to the manometer, or pressure gauge.

Clarification: The manometer displays the air pressure inside the bladder.

- Another tube connects the bladder to the pressure bulb, which can be squeezed to inflate the bladder.
- The pressure control valve permits inflation of the bladder and regulates the rate at which the bladder is deflated.
- To inflate the bladder, the pressure control valve must be twisted all the way to the right.
- When the valve is twisted all the way to the right, air can be pumped into the bladder, but no air can escape from the bladder.

Demonstrate this.

- To deflate the bladder, twist the valve to the left.
- The more the valve is twisted to the left, the faster the bladder will deflate.

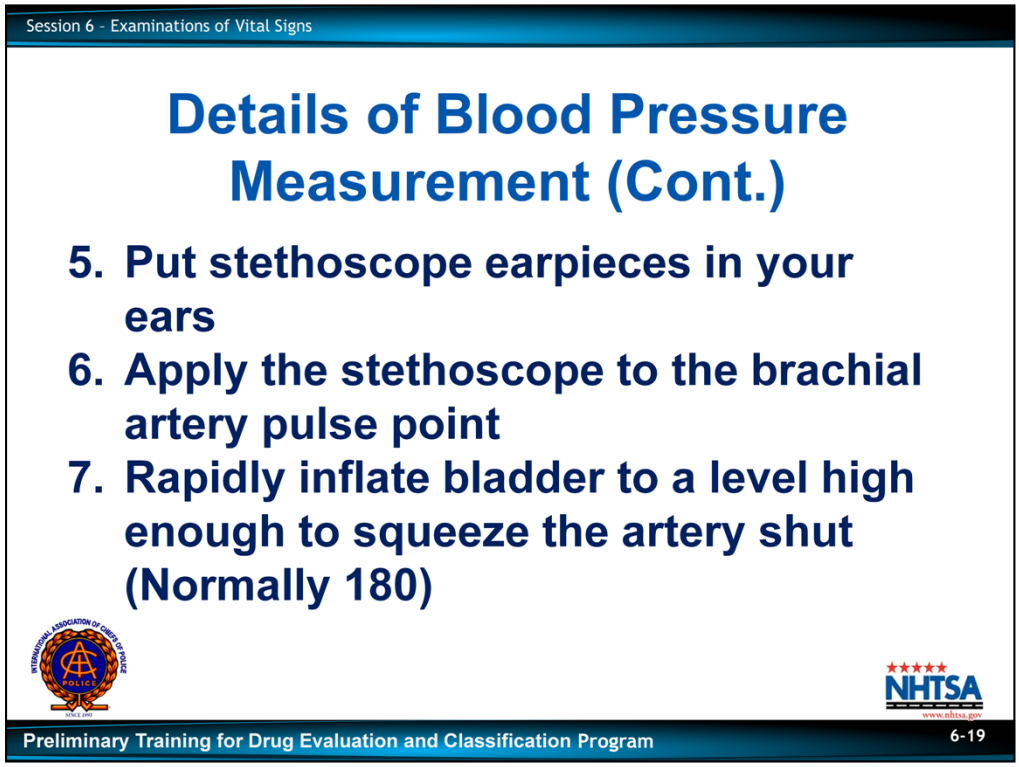


Details of Blood Pressure Measurement

Select a participant to serve as a blood pressure subject and demonstrate the procedures using the participant.

Position the cuff on the bicep so that the tubes extend down the middle of the arm.

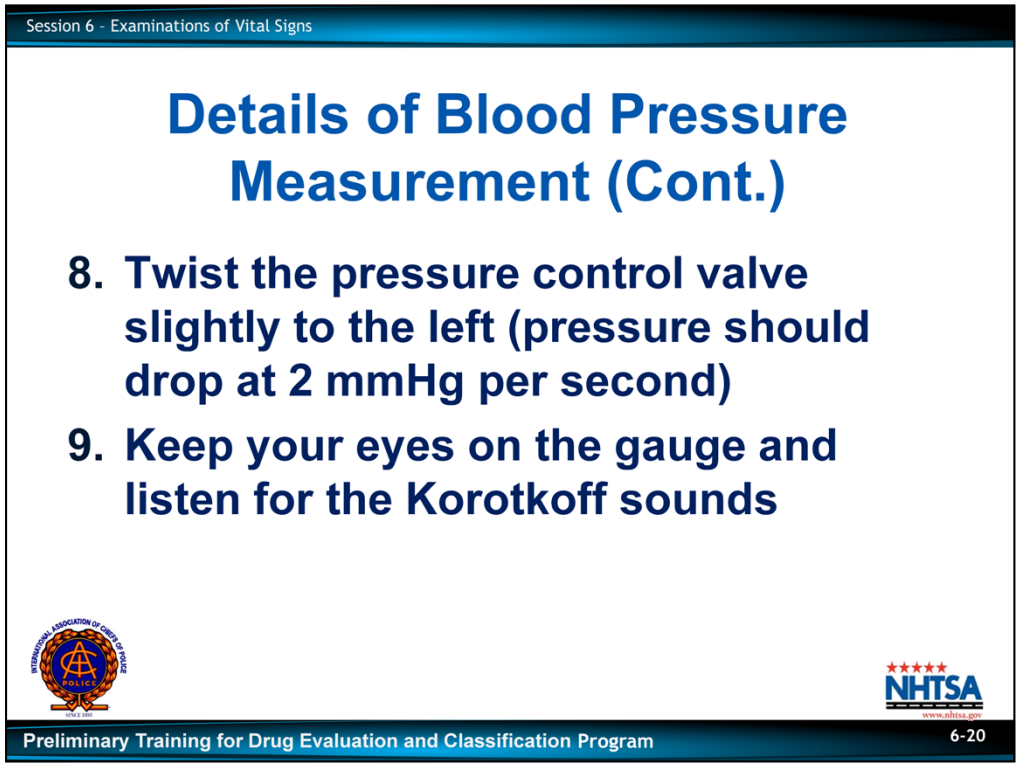
- Wrap the cuff snugly around the bicep.
- Clip the manometer (pressure gauge) on the subject's sleeve, so that it is readily viewable.
- Twist the pressure control valve all the way to the right.



- Put the stethoscope earpieces in your ears.

Make sure the earpieces are turned forward, i.e., toward the nose.

- Place the diaphragm or bell of the stethoscope over the brachial artery.
- Rapidly inflate the bladder to approximately 180mmHg.



- Twist the pressure control valve slightly to the left to release the pressure slowly.

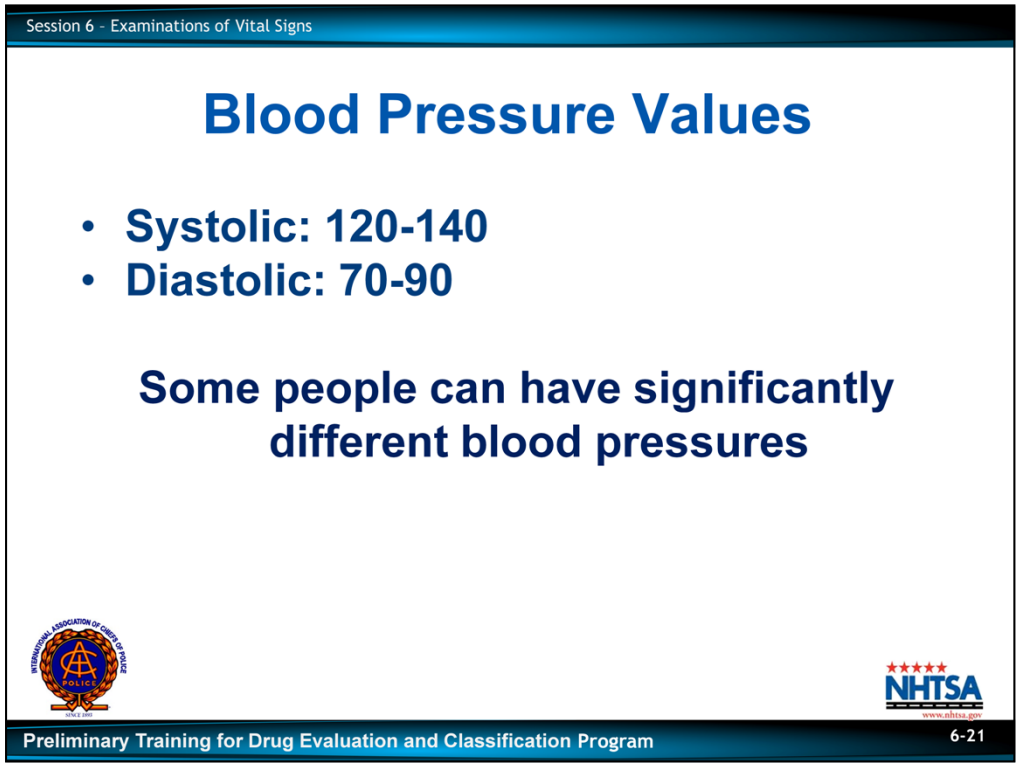
Emphasize the need to release the pressure slowly. If the pressure drops too fast, the needle will sweep down the gauge too quickly to be read accurately. The pressure should be released at a speed that takes one second for the needle to move a single gradation (i.e., 2 millimeters of mercury) on the gauge.

- Keep your eyes on the gauge and listen for the Korotkoff sounds.

The needle on the pressure gauge generally will "bounce" slightly when blood starts to spurt through the artery.

Excuse the participant and thank him or her for participating.

Solicit participants' questions concerning these procedures.



DRE Average Blood Pressure Values

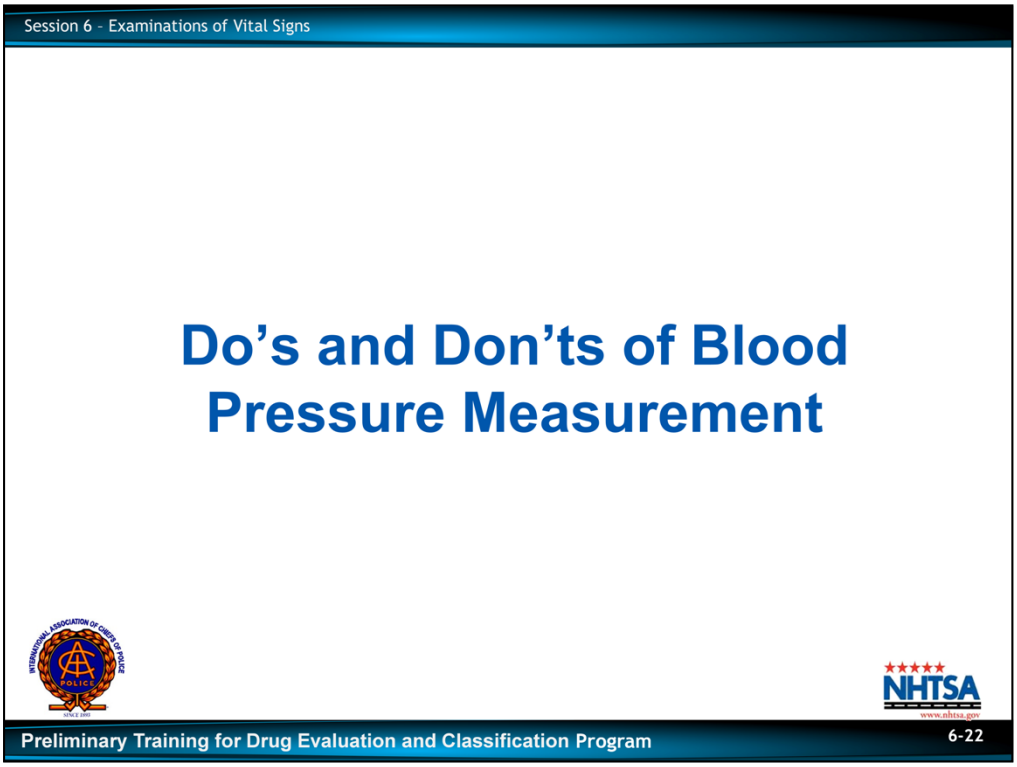
Values of blood pressure are:

Systolic: 120-140

Diastolic: 70-90

Note: Some people can have significantly different blood pressures: there is a wide variation in human blood pressure.

Point Out that the DRE's primarily use manual sphygmomanometers that have only even numbered markings on the manonmeter. So we document even numbers that best represent the systolic and diastolic readings. Odd number readings would indicate that an electronic digital monitor was used which is not the current recommended blood pressure measuring device for DRE purposes.

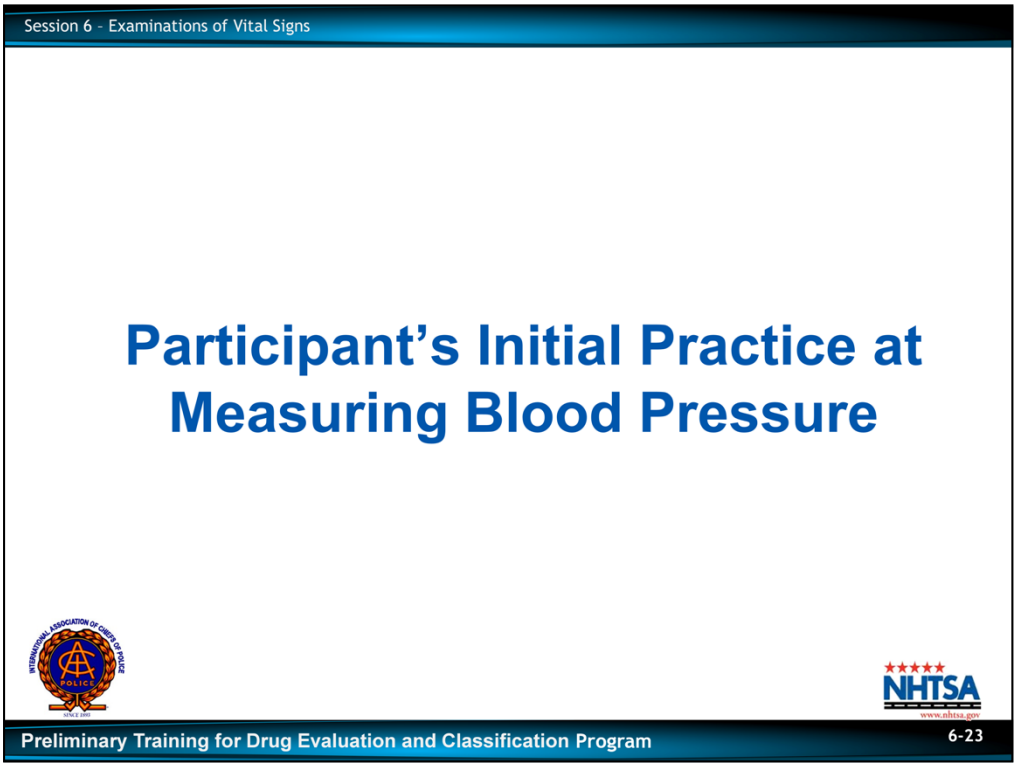


Do's and Don'ts of Blood Pressure Measurement

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.

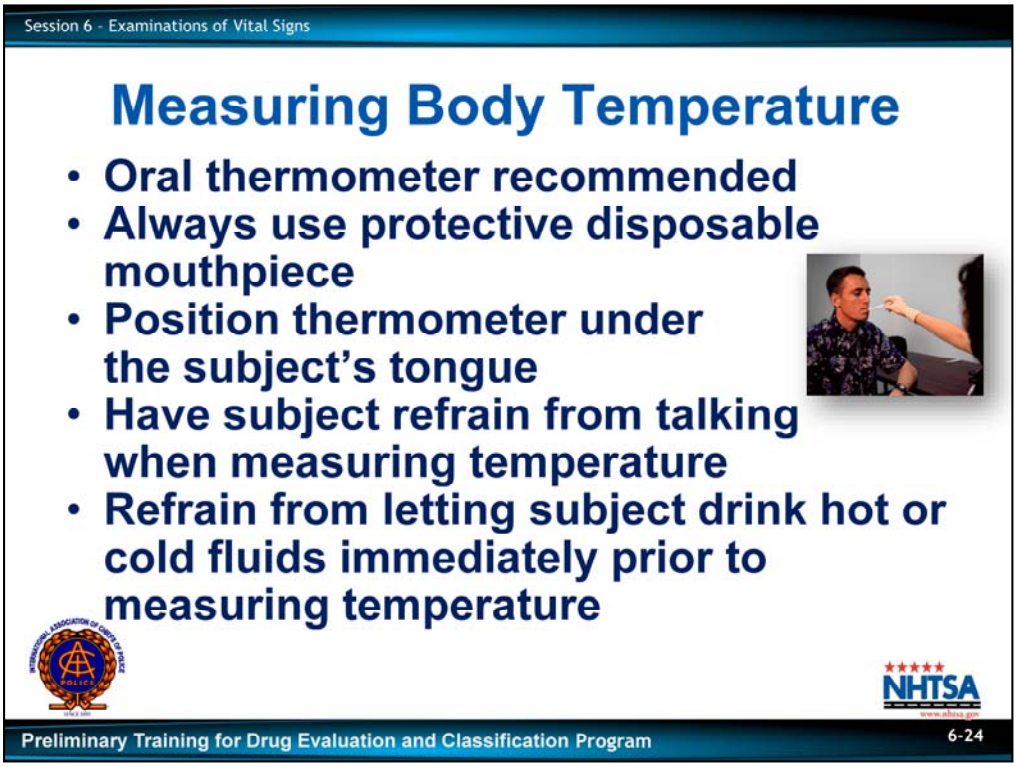
If difficulty is encountered in hearing the Korotkoff sounds, try having the subject raise his or her arm and clench the fist to allow blood flow back to the heart.

Hold the bell of the stethoscope with your fingers; don't slide it under the cuff – that will distort the measurement.



Participant's Initial Practice at Measuring Blood Pressure

If at least one sphygmomanometer and stethoscope are available for every two participants, instruct participants to practice in pairs. Otherwise, assign participants to practice in teams of 3 or 4 members.



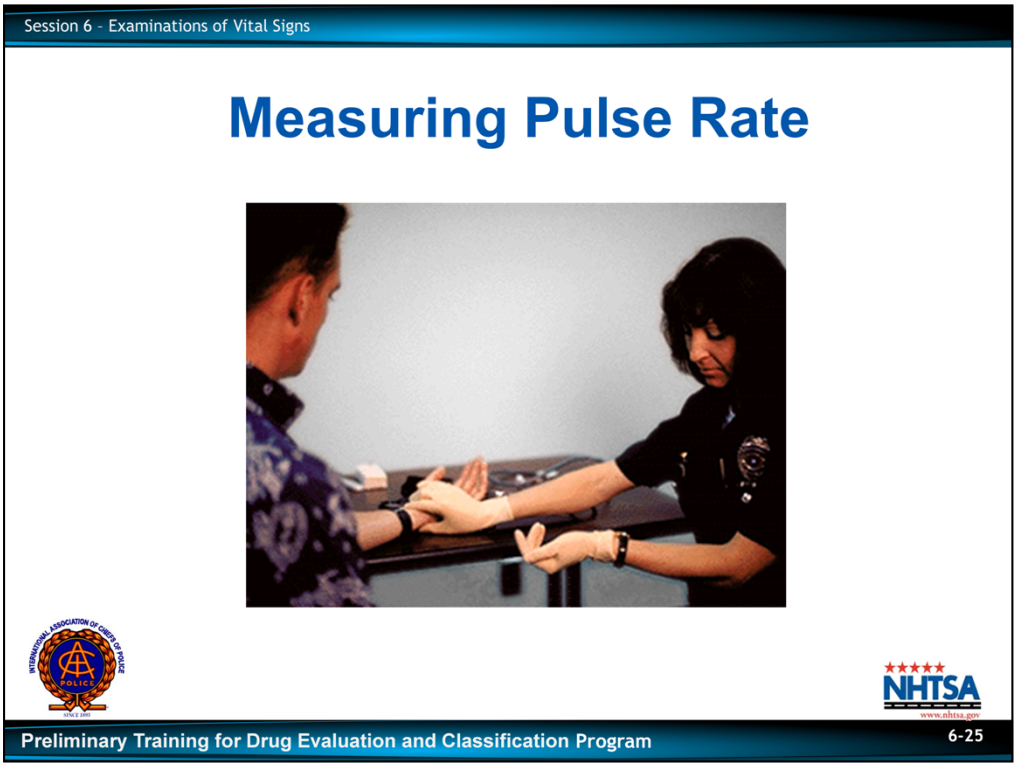
C. <u>Demonstrations</u>

Measurement of Temperature

- **The range for body temperature taken orally is 98.6 degrees + / - 1 degree.**
- Temperature is measured orally using a thermometer.

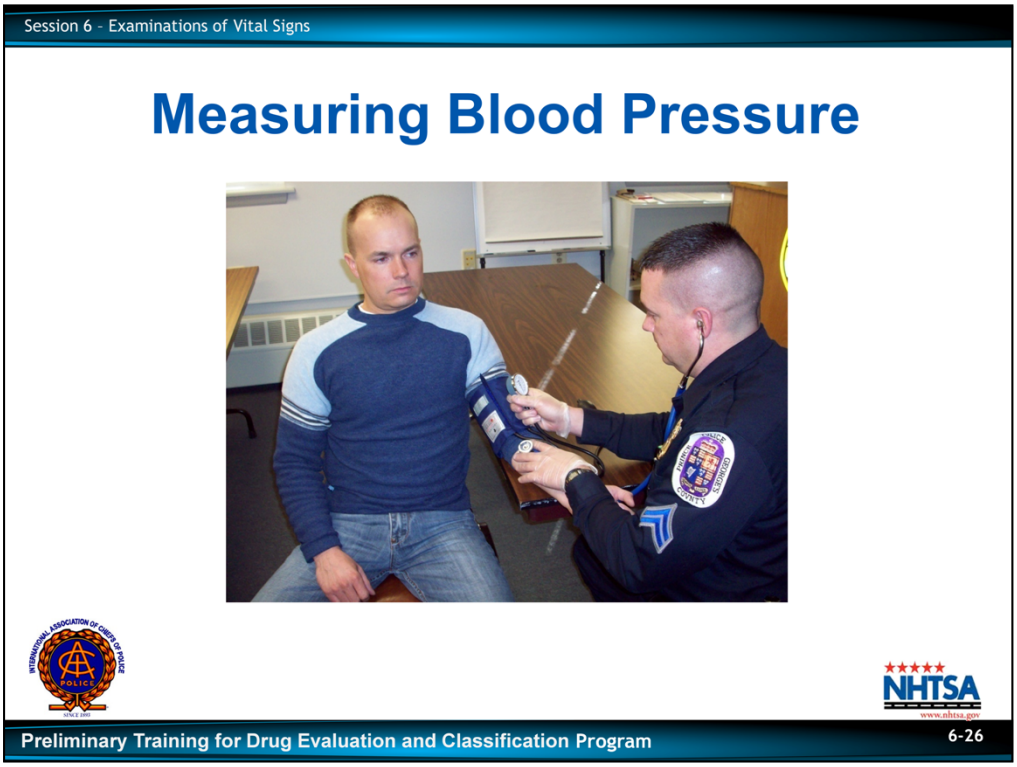
Exhibit this.

- ***Make sure that a fresh disposable mouthpiece is used each time.***
- Ensure that the subject does not take any hot or cold liquids by mouth prior to taking the temperature.
- **Hot and cold liquids immediately prior to the temperature examination may affect the result.**
- ***Solicit participants' comments and questions concerning this overview of procedures and cues.***



Pulse Rate Measurement Demonstrations

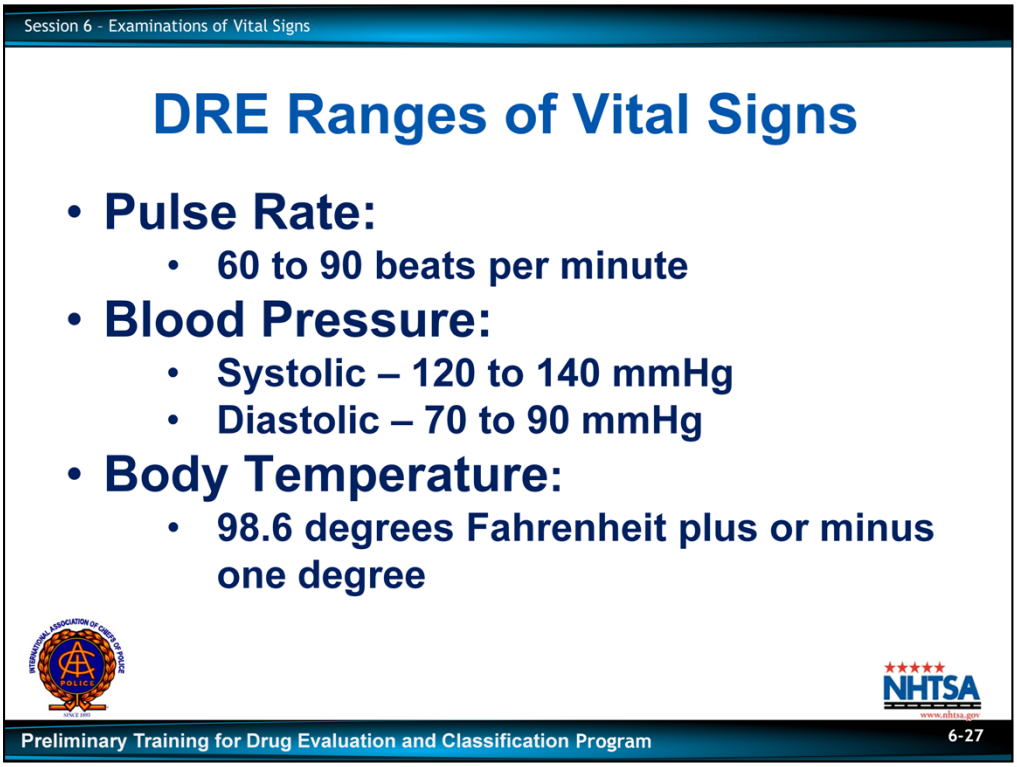
- ***Select two participants to come before the class.***
- ***Instruct the first participant to measure the second's pulse using the radial artery pulse point. (Simultaneously, the instructor should measure the subject's pulse using a carotid artery pulse point).***
- ***Instruct the second participant to measure the first's pulse using the carotid artery pulse point. (Simultaneously, the instructor should measure the subject's pulse using a radial artery pulse point).***
- ***Excuse the two participants and thank them for participating.***



Blood Pressure Measurement Demonstrations

- ***Select two other participants to come before the class.***
- ***Instruct the first participant to measure the second's blood pressure.***
- ***Have the participants reverse roles.***

Excuse the two participants and thank them for participating.



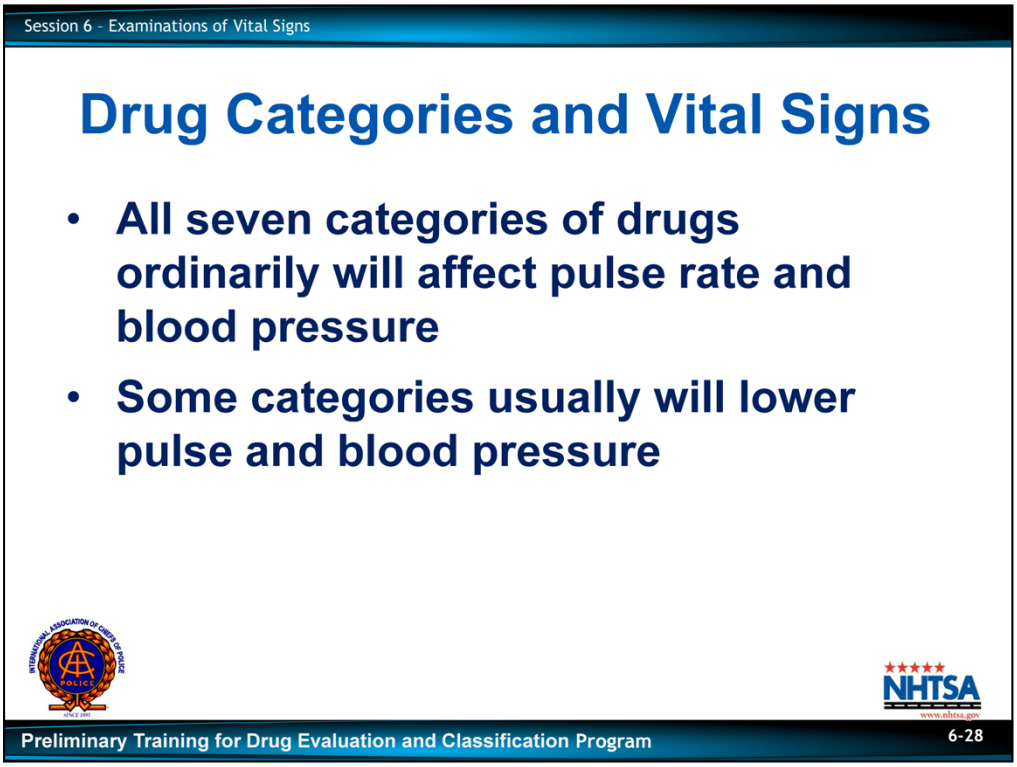
D. <u>Ranges of Vital Signs</u>

Human vital signs vary between individuals. However, the DEC program has identified a set of ranges for each of the three vital sign examinations used in the drug influence evaluation process. The ranges used in the DEC program are a bit wider than those used by the medical profession.

Remind participants that the ranges identified for the DEC program have been established through years of research and with medical input.

DEC Program ranges:

- **Pulse rate: 60 to 90 beats per minute**
- **Blood pressure: Systolic: 120-140 mmHg and Diastolic: 70-90 mmHg**
- **Body temperature: 98.6 degrees, plus or minus 1 degree.**



E. Relationship of Drug Categories to the Vital Signs Examinations

Note: Draw the matrix (at the end of this session) on the dry erase board or flip-chart at the outset of this session.

- All seven categories of drugs ordinarily will affect pulse rate and blood pressure.
- Some categories usually will lower pulse and blood pressure.

Ask the participants which categories will lower pulse rate and blood pressure.

- CNS Depressants and Narcotic Analgesics usually lower pulse and BP.

Write "DOWN" on the pulse and blood pressure lines under the columns for Depressants and Narcotics.

- Quaaludes, ETOH and possibly some anti-depressants may cause the pulse to increase.

The other five categories all tend to elevate pulse rate.

Write "UP" on the pulse line under the five remaining columns.

- Most of the drug categories that elevate pulse rate also elevate blood pressure.
- CNS Stimulants, Hallucinogens, Dissociative Anesthetics and Cannabis all usually cause blood pressure to rise.

Write "UP" on the blood pressure line for those four categories.

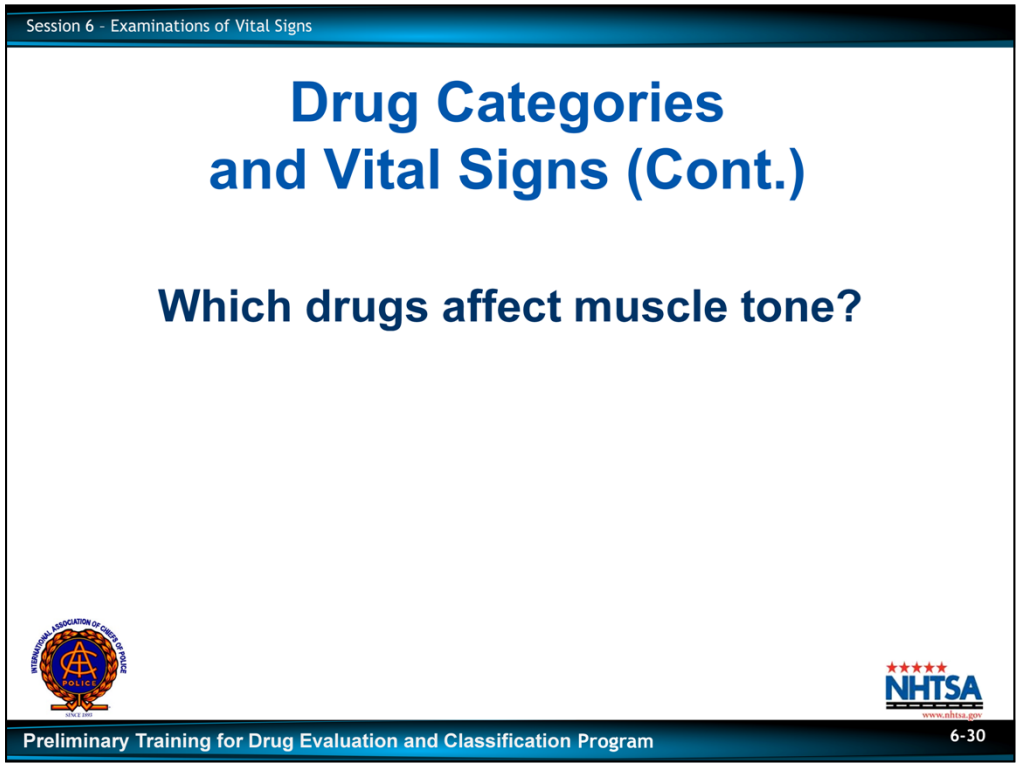
- The vast majority of Inhalants, namely, the volatile solvents and the aerosols, also elevate blood pressure.
- But the remaining small group of Inhalants, the anesthetic gases, actually lowers the blood pressure.

Remind participants that the anesthetic gases include such things as nitrous oxide, amyl nitrite and ether.

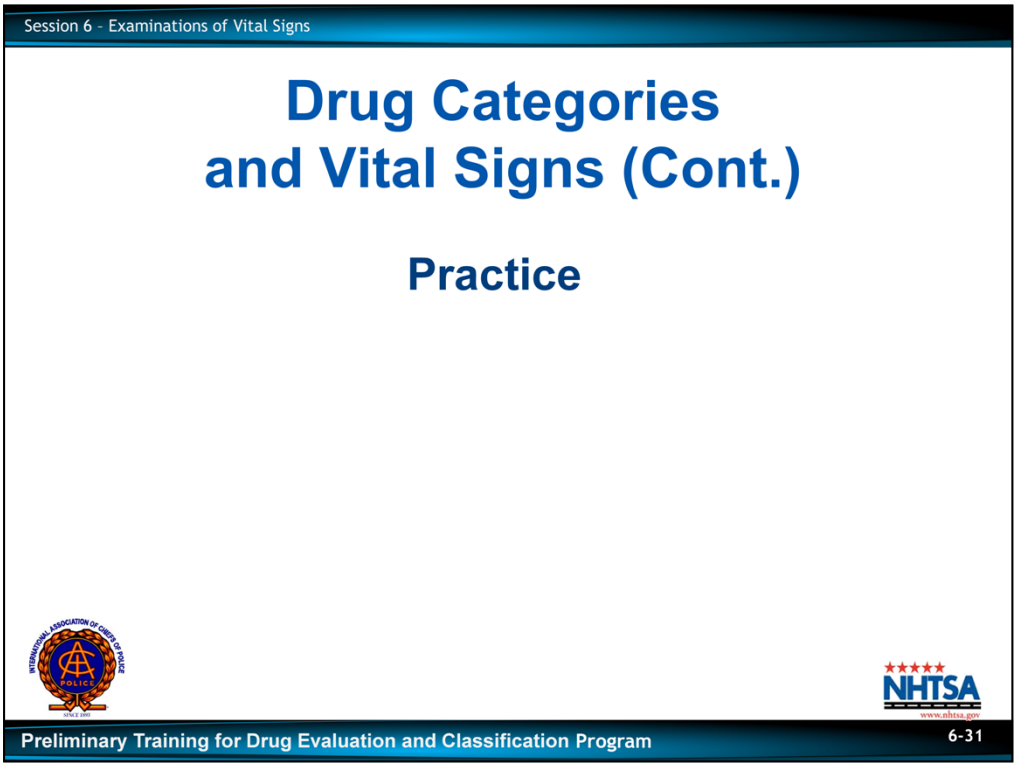
- So for Inhalants, the effect on blood pressure will be up or down.

Write "UP/DOWN" with the footnote – down with anesthetic gases, up with volatile solvents and aerosols – on the blood pressure line under the Inhalants column.

Three of the categories usually will cause the body temperature to rise.
Ask participants which categories usually cause an elevation in body temperature.
The drug PCP and its analogs from the Dissociative Anesthetics category usually increase body temperature; PCP users have been known to remove their clothing to cool down.
Write "UP" on the TEMP line under the Dissociative Anesthetics column.
CNS Stimulants and Hallucinogens also will usually increase body temperature.
Write "UP" on the TEMP line for CNS Stimulants and Hallucinogens.
The effect of Inhalants on body temperature depends on the specific substance that is inhaled.
Some inhalants may cause temperature to increase or be down.
But other inhalants may leave the temperature near normal.
Write "UP/DOWN/or NORMAL" on the TEMP line for Inhalants.
One category usually causes body temperature to be lowered.
Ask participants which category usually lowers temperature.
Narcotic Analgesics usually lower body temperature.
Write "DOWN" on the TEMP line for Narcotics.
The remaining two categories usually do not affect temperature.
Write "NORMAL" on the TEMP line for Depressants and Cannabis.



Three of the categories usually will cause the muscle tone to be rigid.
Ask participants which categories will cause the muscle tone to be rigid.
CNS Stimulants, Hallucinogens and Dissociative Anesthetics will usually cause a rigid muscle tone.
Write “RIGID” on the Muscle Tone line for Stimulants, Dissociative Anesthetics and Hallucinogens.
Two categories usually cause muscle tone to be flaccid.
Ask participants which categories cause flaccid muscle tone.
CNS Depressants and Narcotic Analgesics usually cause a flaccid muscle tone.
Write “FLACCID” on the Muscle Tone line for Depressants and Narcotic Analgesics.
One category usually causes normal muscle tone.
Ask participants which category causes a normal muscle tone.
Cannabis usually causes normal muscle tone.
Write “NORMAL” on the Muscle Tone line for Cannabis.
One category will usually cause either normal or flaccid muscle tone.
Ask participants which categories usually cause either normal or flaccid muscle tone.
Inhalants usually cause either normal or flaccid muscle tone.
Write “NORMAL or FLACCID” on the muscle tone line for Inhalants.
Solicit participants’ questions and comments.



F. Practice

Assignments and Procedures

Team Assignments:

Group the participants into teams of three (3) members each. Each team must have at least one blood pressure kit.

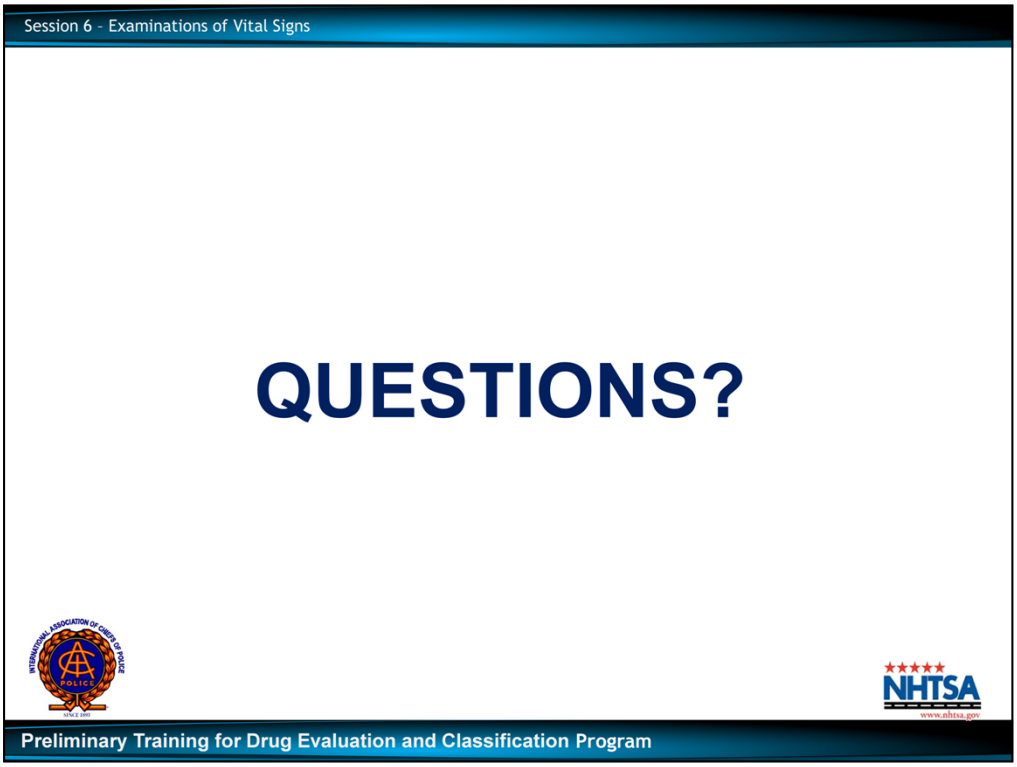
- Explanation of Practice
- Teammates will take turns measuring each other's pulse rate and blood pressure.
- Each participant will write down every measurement he or she makes and the time at which the measurement was made.
- Whichever member of the team is not engaged in taking the measurement or serving as the "suspect" will act as a coach and offer appropriate constructive criticism to his or her teammate.
- Practice will continue until each participant has taken at least three complete pulse and blood pressure measurements on both teammates.

Solicit questions about the practice procedures.

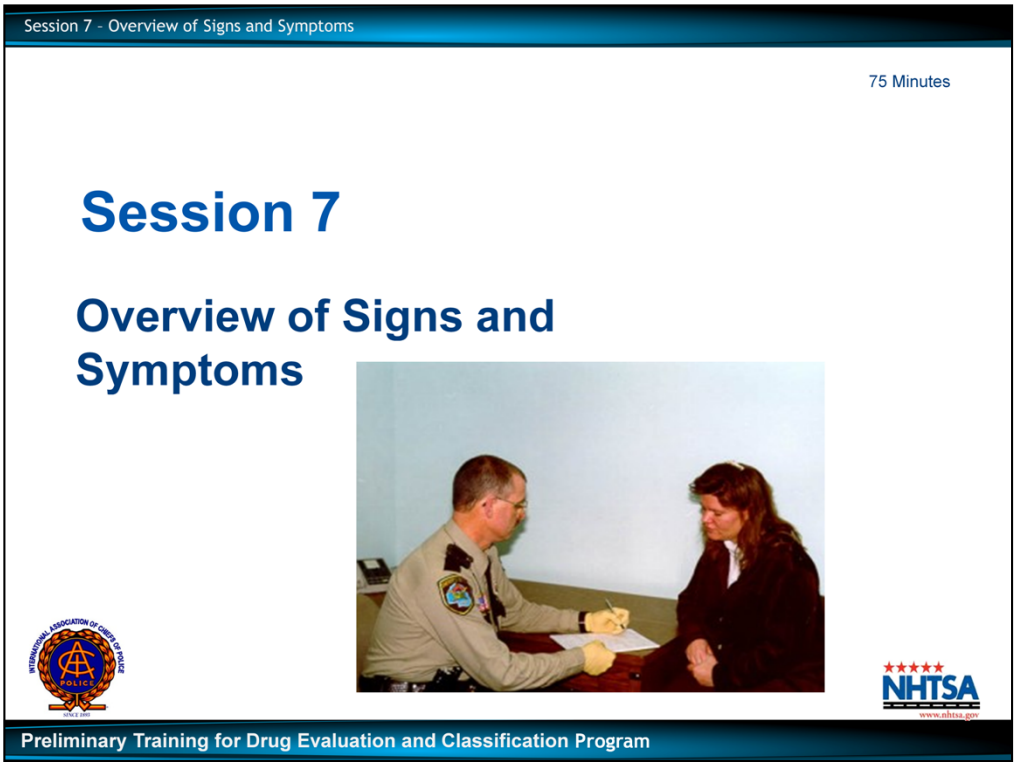
- **Testing (participants testing participants)**

Monitor the practice to ensure compliance with the procedures.

Offer coaching and constructive criticism as appropriate.

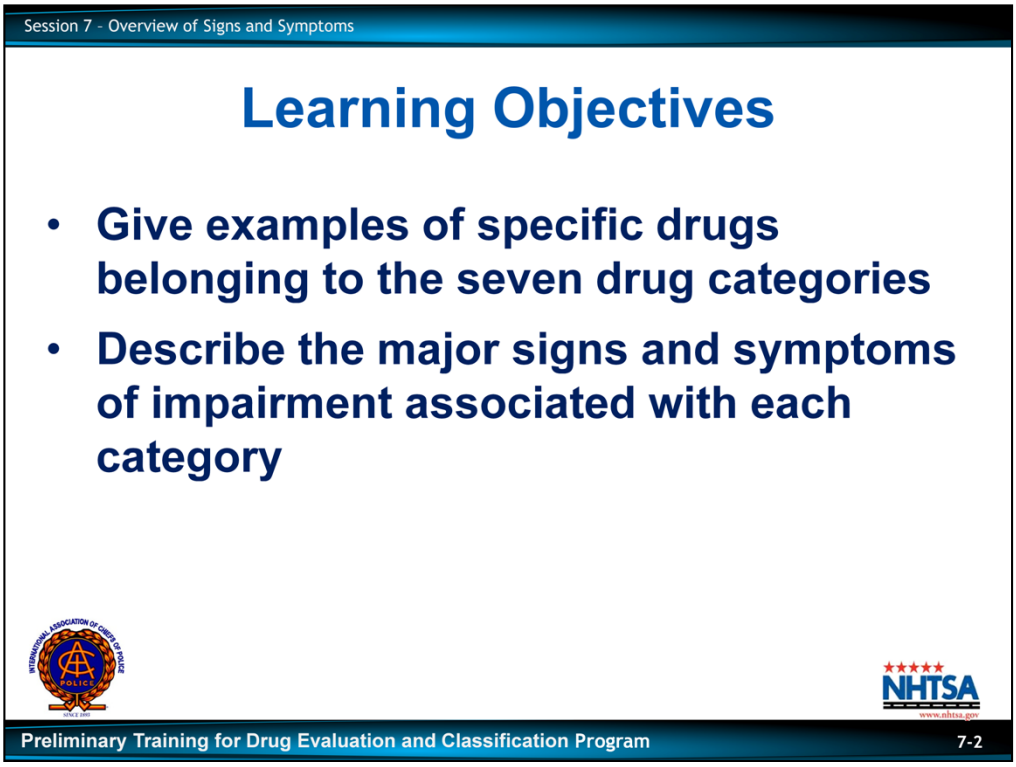


Solicit participants' questions about the Examinations of Vital Signs.



Prior to the start of this session, draw a blank drug matrix on the dry erase board or flip-chart.

INDICATOR	CNS Dep	CNS Stim	Hallucinogens	Dissoc. Anesthetics	Narcotic Analgesics	Inhalants	Cannabis
HGN							
Vertical Gaze Nystagmus							
Lack of Convergence							
Pupil Size							
Reaction to Light							
Pulse Rate							
Blood Pressure							
Body Temperature							
Muscle Tone							



Briefly review the objectives, content and activities of this session.

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

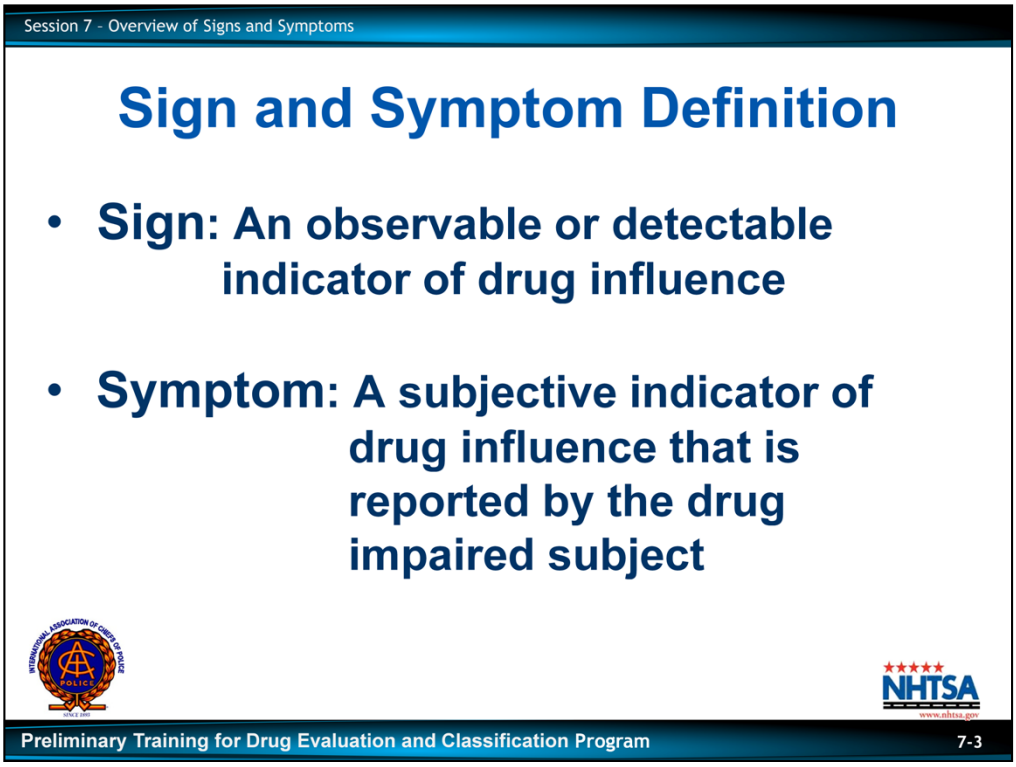
- Give examples of specific drugs belonging to the seven drug categories.
- Describe the major signs and symptoms of impairment associated with each category.

CONTENT SEGMENTS

A. CNS Depressants
B. CNS Stimulants
C. Hallucinogens
D. Dissociative Anesthetics
E. Narcotic Analgesics
F. Inhalants
G. Cannabis
H. Wrap-Up

LEARNING ACTIVITIES

Interactive Discussions



- Sign: An observable or detectable indicator of drug influence (i.e., dilated pupils, high blood pressure).
- Symptom: A subjective indicator of drug influence that is reported by the drug impaired subject (i.e., “I feel nauseous.”)

A. CNS Depressants

Central Nervous System Depressants is a category that includes many different drugs.

Ask participants to name some examples of CNS Depressants. Make sure that the examples given include alcohol, some barbiturates and some tranquilizers.

Indicators of CNS Depressant Influence Found in Eye Exams

Ask participants: "Do depressants cause Horizontal Gaze Nystagmus?"

HGN usually will be present.

Write "Present" on the HGN line for Depressants.

Ask: "Do Depressants cause Vertical Gaze Nystagmus?"

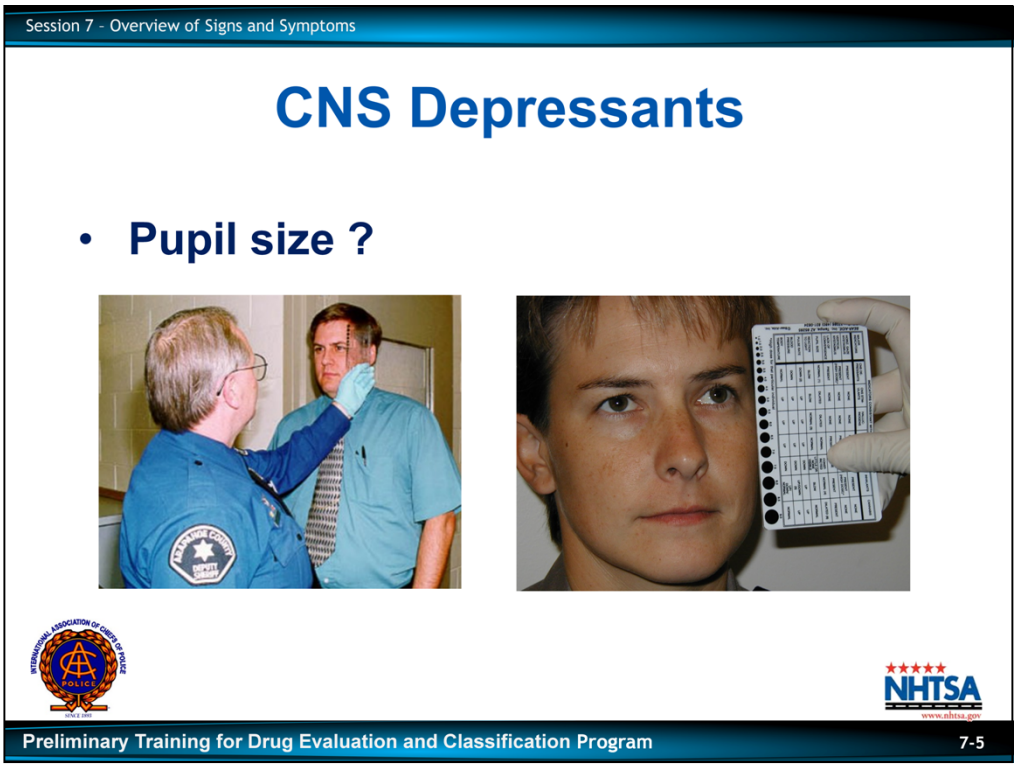
Vertical Gaze Nystagmus may be present, especially with high doses (for that individual) of Depressants

Write "Present" on the VERT NYST line for Depressants. Denote in parentheses above "(High Doses)."

Ask: "Do Depressants cause the eyes to be unable to converge?"

Under the influence of Depressants, Lack of Convergence usually will be present.

Write "Present" on the LACK CONV line for Depressants.



Depressants usually do not effect pupil size; therefore, the pupils will normally be in the average ranges.

Depressants usually do not affect pupil size; therefore, the pupils will normally be in the average range.

Write "Normal" on the PUPIL SIZE line for Depressants.

But some specific Depressant drugs do affect pupil size.

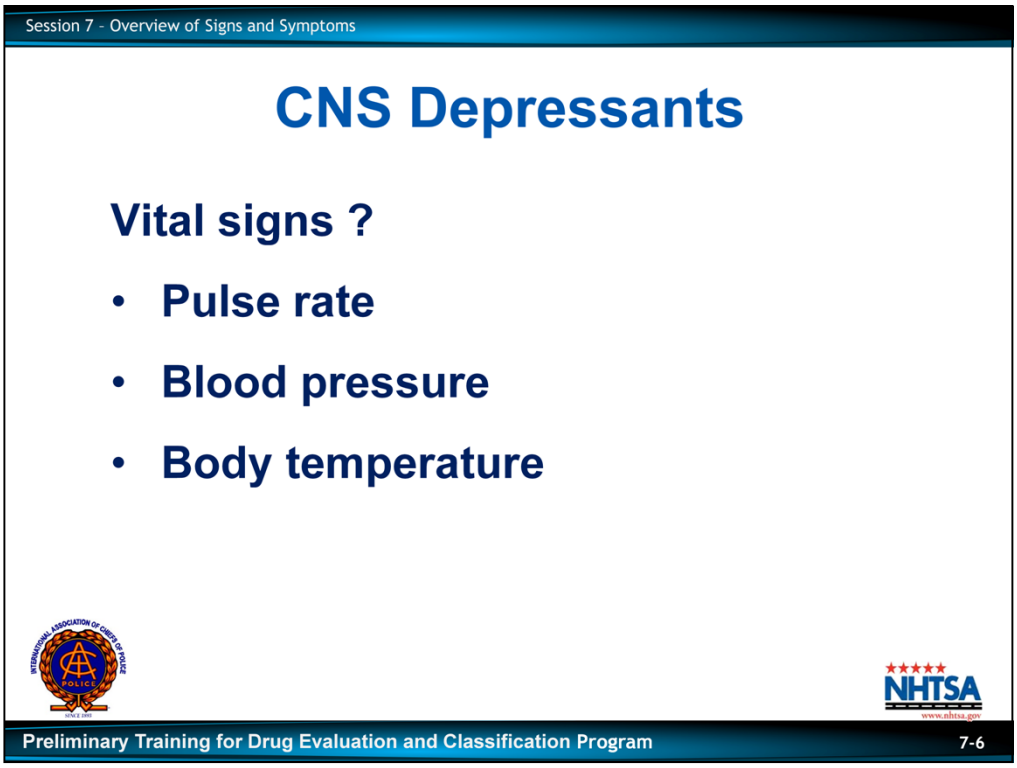
Ask: "What are the Depressants that affect pupil size?"

Soma, Methaqualone (Quaaludes) and some anti-depressants usually dilate pupils.

Put a (1) next to "Normal" and write "Soma, Quaaludes and some anti-depressants usually dilate."

Depressants generally will cause pupillary reaction to light to be sluggish.

Write "Slow" on the RCTN LIGHT line for Depressants.



Indicators of CNS Depressant Influence Found in Checks of the Vital Signs

Ask: "How do Depressants affect pulse rate?"

Depressants usually lower pulse rate.

Write "Down" on the PULSE line for Depressants.

But some specific Depressant drugs may elevate the pulse.

Ask: "What are the Depressants that may elevate pulse rate?"

Methaqualone (Quaaludes), alcohol and possibly some anti-depressants may cause elevation in pulse rate.

Put a (2) next to "Down" and write "Quaaludes, ETOH and possibly some anti-depressants may elevate" in the Matrix.

Ask: "How do Depressants affect blood pressure?"

Depressants usually lower blood pressure.

Write "Lower" on the Blood Pressure line for Depressants

Ask: "How do Depressants affect body temperature?"

Depressants usually leave temperature near normal.

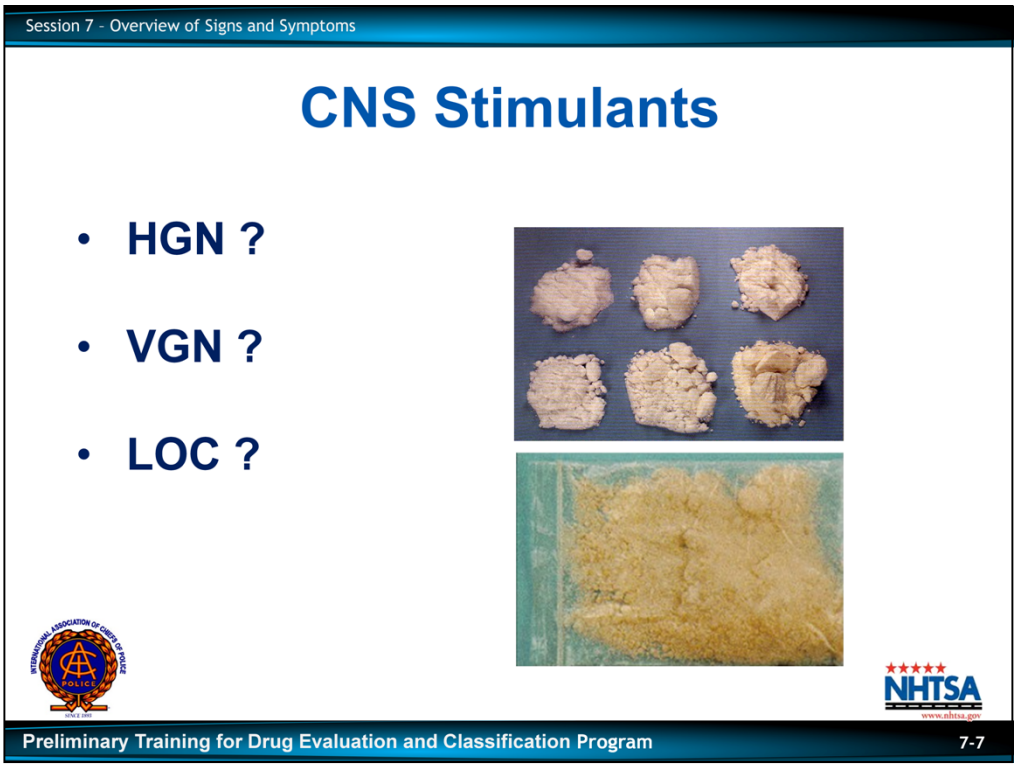
Write "Normal" on the TEMP line for Depressants.

Ask: "How do Depressants affect muscle tone?"

Depressants usually cause flaccid muscle tone.

Write "Flaccid" on the MUSCLE TONE line for Depressants.

Solicit participants' questions about CNS Depressants.



B. <u>CNS Stimulants</u>

The category called Central Nervous System Stimulants includes many drugs.

Ask participants to name some examples of CNS Stimulants. Make sure the examples include cocaine and some amphetamines.

Indicators of CNS Stimulant Influence Found in Eye Exams

Ask participants: "Do CNS Stimulants cause Horizontal Gaze Nystagmus?"

Write "None" on the HGN line for CNS Stimulants.

HGN will not be present.

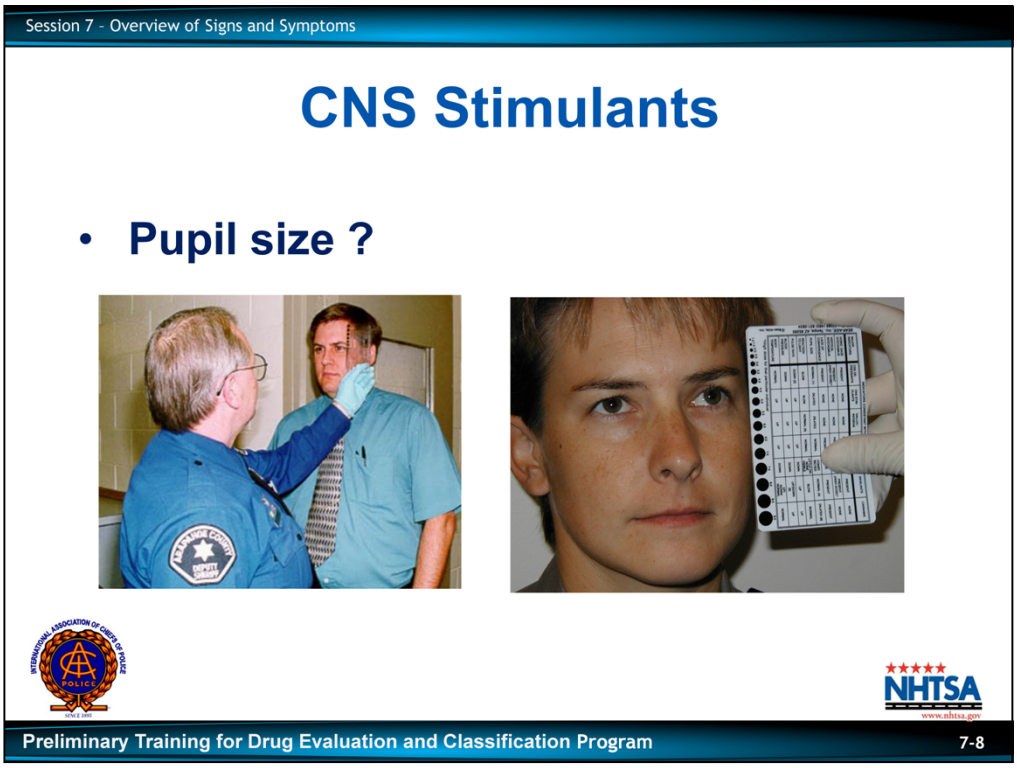
Ask: "Do CNS Stimulants cause Vertical Gaze Nystagmus?"

Write "None" on the VERT NYST line for CNS Stimulants.

Vertical Gaze Nystagmus will not be present.

Ask: "Do CNS Stimulants cause the eyes to be unable to converge?"

Write "None" on the LACK CONV line for CNS Stimulants.



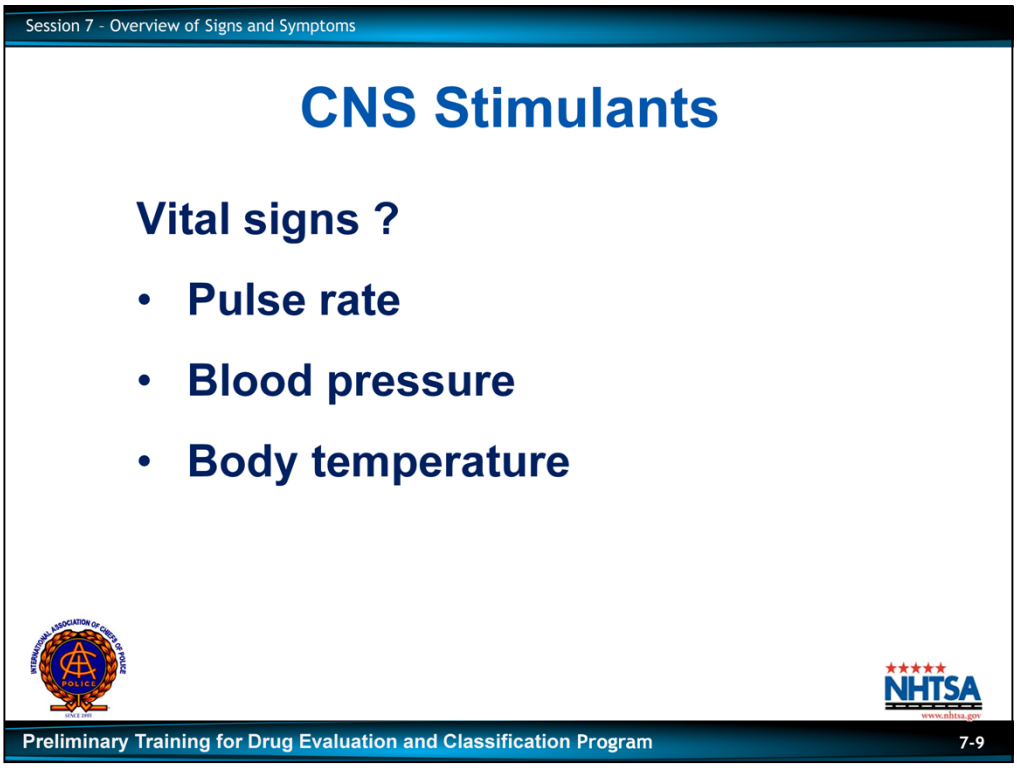
Ask: "How do CNS Stimulants affect pupil size?"

CNS Stimulants usually cause the pupils to dilate.

Write "Dilated" on the PUPIL SIZE line for CNS Stimulants.

We have seen that CNS Depressants effect pupillary reaction; similarly, CNS Stimulants may cause a slowing in the pupillary reaction to light.

Write "Slow" on the RCTN LIGHT line for CNS Stimulants.



Indicators of CNS Stimulant Influence Found in Checks of Vital Signs

Ask: "How do CNS Stimulants effect pulse rate?"

CNS Stimulants usually increase pulse rate.

Write "Up" on the PULSE line for CNS Stimulants.

Ask: "How do CNS Stimulants effect blood pressure?"

CNS Stimulants usually increase blood pressure.

Write "Up" on the BLOOD PRESS line for CNS Stimulants.

Ask: "How do CNS Stimulants effect body temperature?"

CNS Stimulants usually elevate body temperature.

Write "Up" on the TEMP line for CNS Stimulants.

Ask: "How do CNS Stimulants effect muscle tone?"

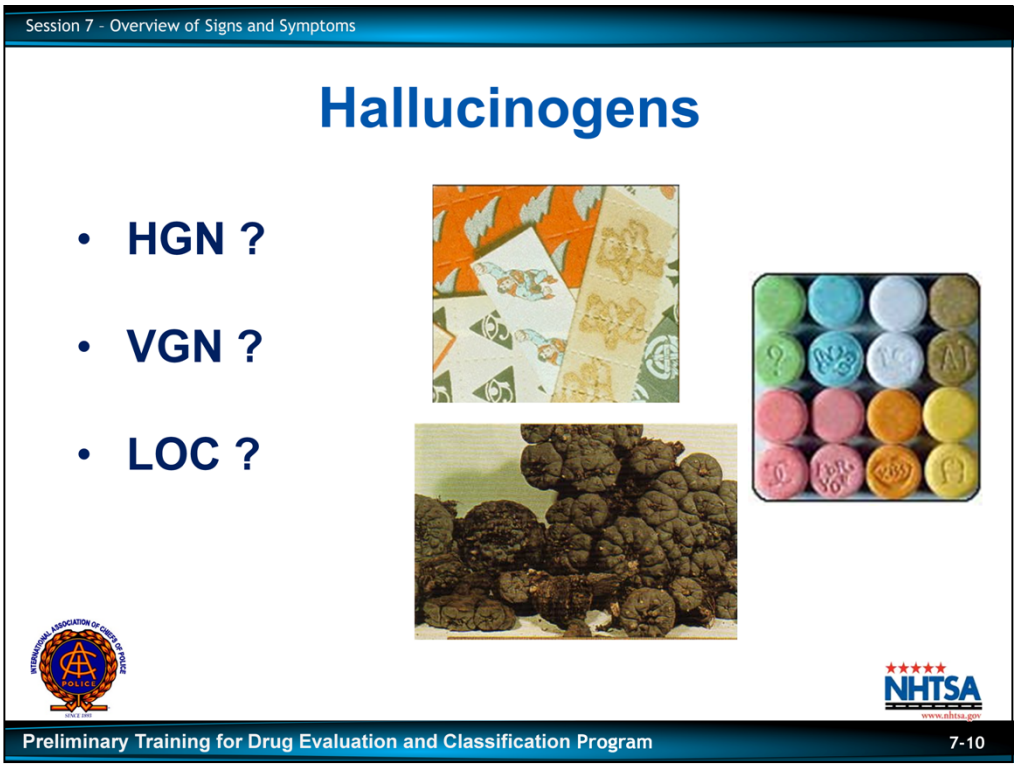
CNS Stimulants usually cause a rigid muscle tone.

Write "Rigid" on the MUSCLE TONE line for CNS Stimulants.

Though not directly related to the vital signs, the evaluator may find the subject's muscle tone to be rigid with possible body tremors. A grinding of the teeth, referred to as "bruxism" may also be noticed.

Point out that, as shown on the matrix, the signs of Stimulant influence are almost exactly opposite of the signs of Depressant influence.

Solicit participants' questions about CNS Stimulants.



C. Hallucinogens

Hallucinogens include some naturally occurring substances as well as some synthetic drugs.

Ask participants to name some hallucinogenic drugs. Make sure the examples include some natural Hallucinogens as well as some synthetics.

Indicators of Hallucinogen Influence Found in Eye Exams

Ask participants: "Do Hallucinogens cause Horizontal Gaze Nystagmus?"

HGN will not be present.

Write "None" on the HGN line for Hallucinogens.

Ask: "Do Hallucinogens cause Vertical Gaze Nystagmus?"

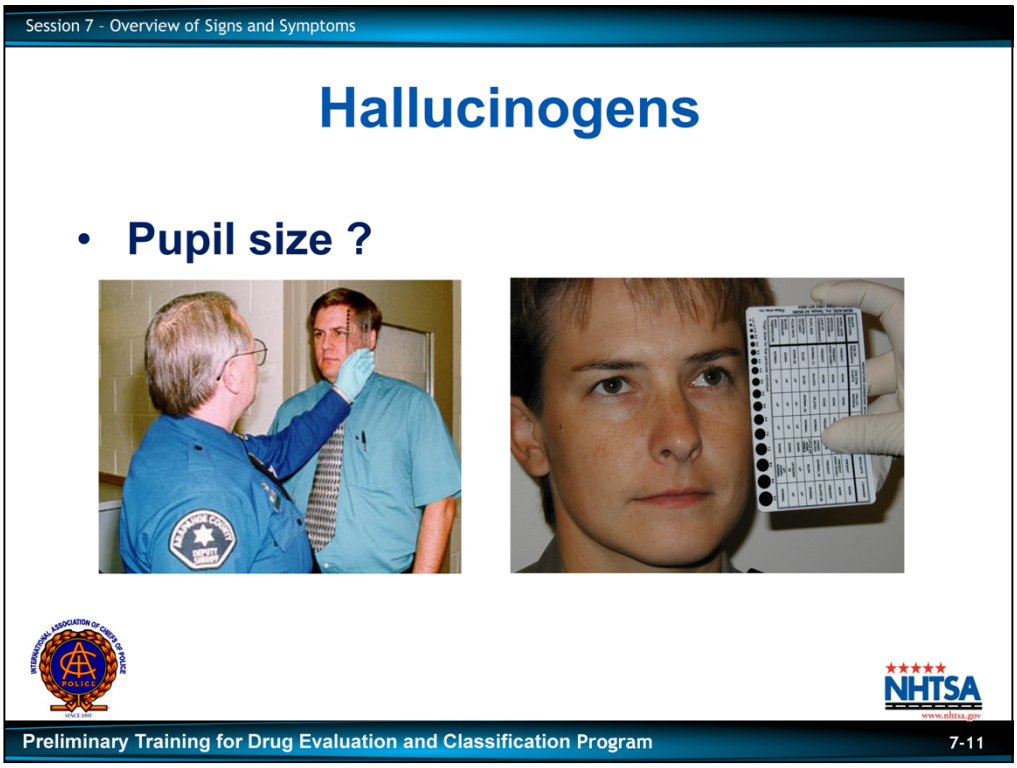
Vertical Gaze Nystagmus will not be present.

Write "None" on the VERT NYST line for Hallucinogens.

Ask: "Do Hallucinogens cause the eyes to be unable to converge?"

Under the influence of Hallucinogens, the eyes should still be able to converge; therefore, lack of convergence will not be present.

Write "None" on the LACK CONV line for Hallucinogens.



Ask: "How do Hallucinogens affect pupil size?"

Hallucinogens usually cause the pupils to dilate.

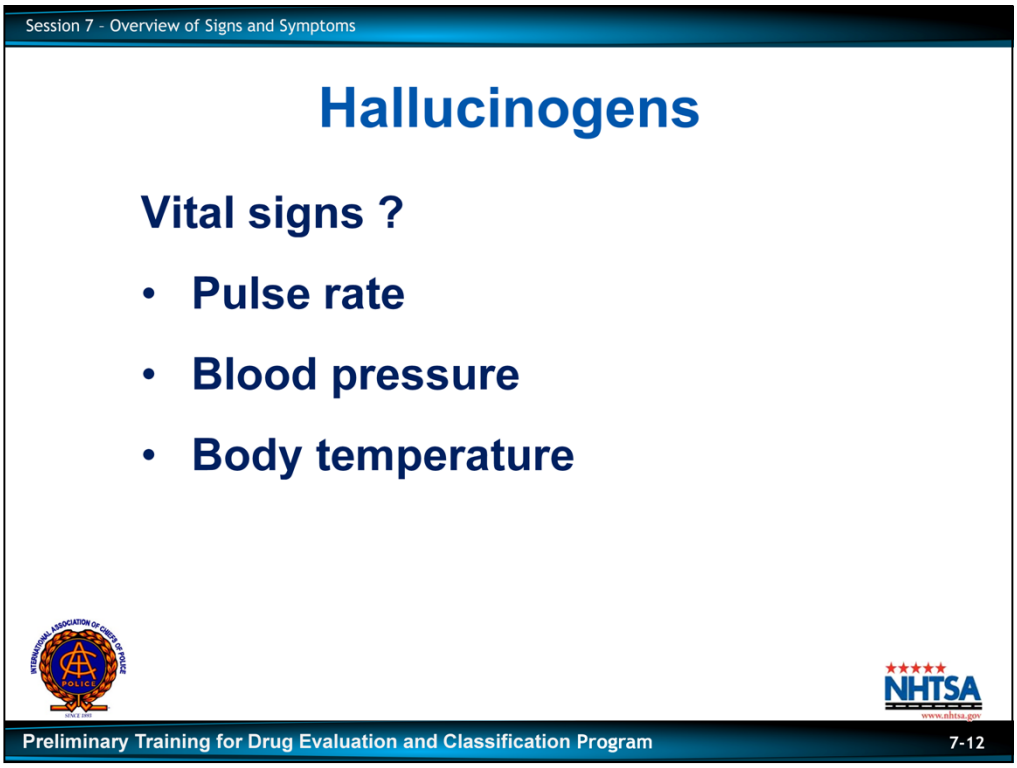
Write "Dilated" on the PUPIL SIZE line for Hallucinogens.

Normally, Hallucinogens do not effect pupillary reaction to light.

Write "Normal" on the RCTN LIGHT line for Hallucinogens.

However, certain psychedelic amphetamines may cause a slowing in the pupillary reaction.

Put a (3) next to "Normal" and write "certain psychedelic amphetamines may cause slowing" in the Matrix.



Indicators of Hallucinogen Influence Found in Checks of Vital Signs

Ask: "How do Hallucinogens affect pulse rate?"

Hallucinogens usually increase pulse rate.

Write "Up" on the PULSE line for Hallucinogens.

Ask: "How do Hallucinogens affect blood pressure?"

Hallucinogens usually increase blood pressure.

Write "Up" on the BLOOD PRESS line for Hallucinogens.

Ask: "How do Hallucinogens affect body temperature?"

Hallucinogens usually elevate body temperature.

Write "Up" on the TEMP line for Hallucinogens.

Ask: "How do Hallucinogens affect muscle tone?

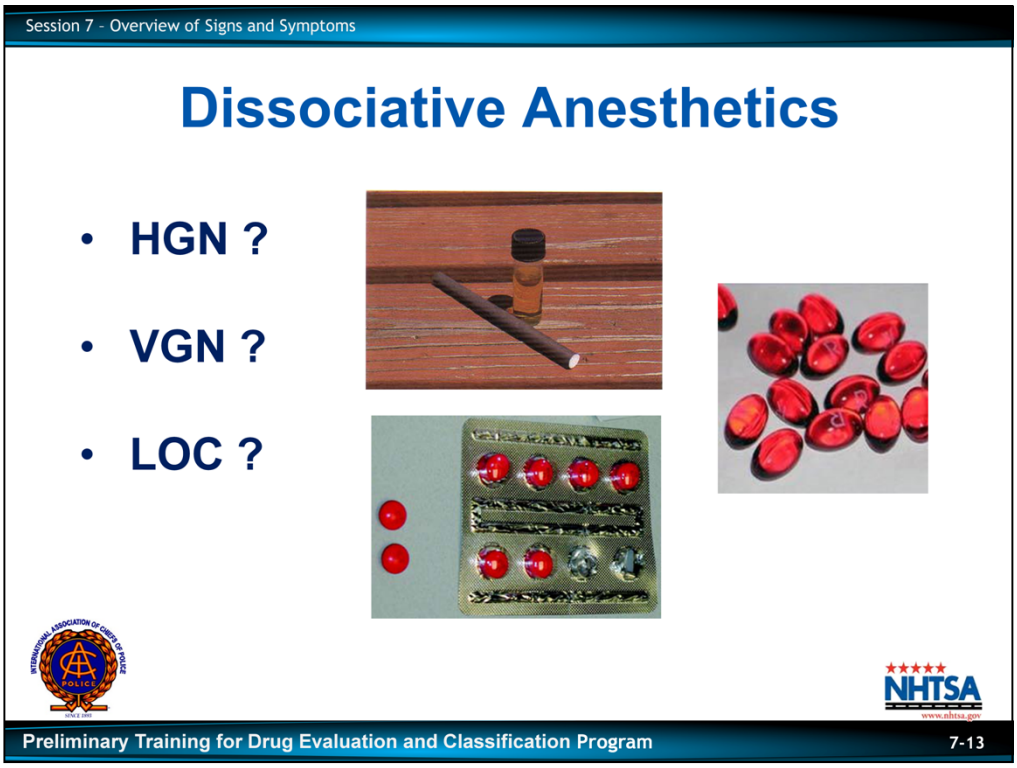
Hallucinogens usually cause a rigid muscle tone.

Write "Rigid" on the MUSCLE TONE line for Hallucinogens.

Point out that, as shown on the matrix, the major signs of Hallucinogen influence are nearly identical to the major signs of Stimulant influence.

If we only had these major signs to go by, it would be difficult to distinguish between someone under the influence of CNS Stimulants from someone under the influence of Hallucinogens.

Point out that, in the seven day DRE School, the participants will learn of more subtle indicators that help to distinguish Hallucinogen influence from Stimulant influence. But emphasize that it is often difficult to distinguish between these two categories. Solicit participants' questions about Hallucinogens.



D. Dissociative Anesthetics

The category called Dissociative Anesthetics consists of the drug PCP, its various analogs and Dextromethorphan.

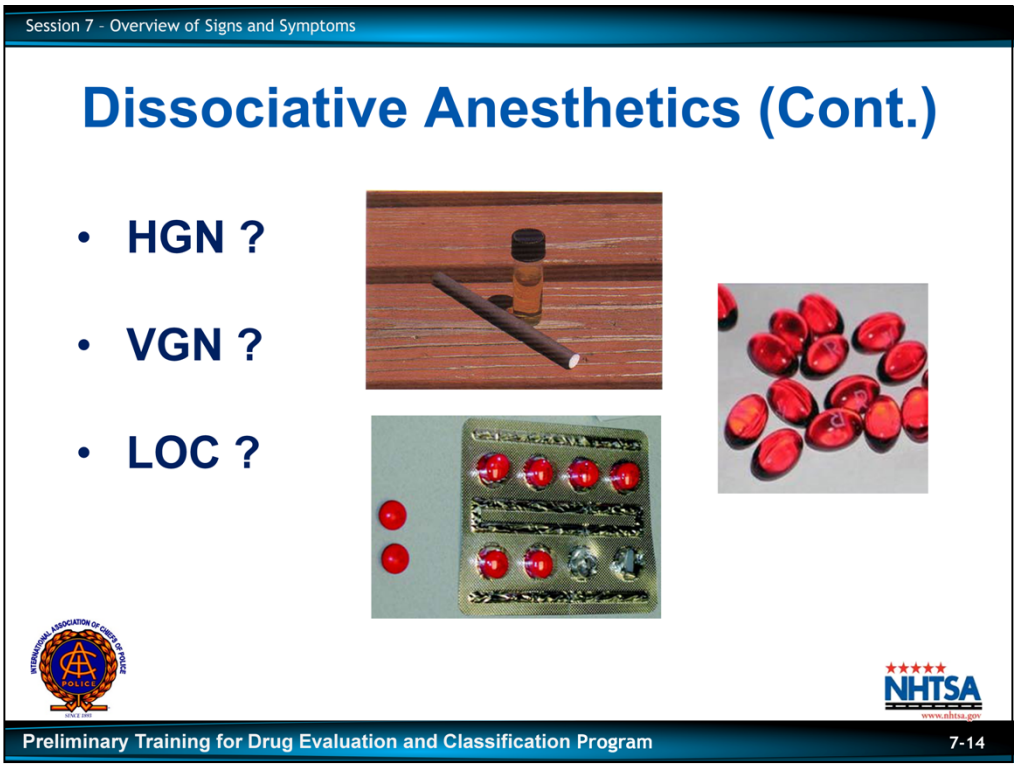
Ask participants: "What does 'analog' mean in this context?"

- An 'analog' of PCP is a drug that is a 'chemical first cousin' of PCP; that is, it is a drug that has a slightly different molecular structure from that of PCP, but produces the same effects as PCP.

Write "Ketamine: An analog of PCP" on the dry erase board or flip-chart.

- One of the most popular analogs of PCP is the drug called Ketamine.
- Ketamine is a legally manufactured (but controlled) drug that is used as an anesthetic in some surgical applications.
- Some other analogs of PCP include Ketalar, Ketaset, and Ketajet.
- Dextromethorphan is a drug found in numerous over-the-counter substances.

Point out that Dextromethorphan, also known as DXM is a widely abused substance and is easy to obtain.



Indicators of the Dissociative Anesthetics Found in Eye Exams

Ask participants: "Do Dissociative Anesthetics cause Horizontal Gaze Nystagmus?"

HGN usually will be present, and often with a very early onset.

Write "Present" on the HGN line for Dissociative Anesthetics.

Both HGN and VGN were noted in various DRE evaluations conducted on persons impaired by DXM. Research has also confirmed HGN in persons impaired by DXM.

Ask: "Do Dissociative Anesthetics cause Vertical Gaze Nystagmus?"

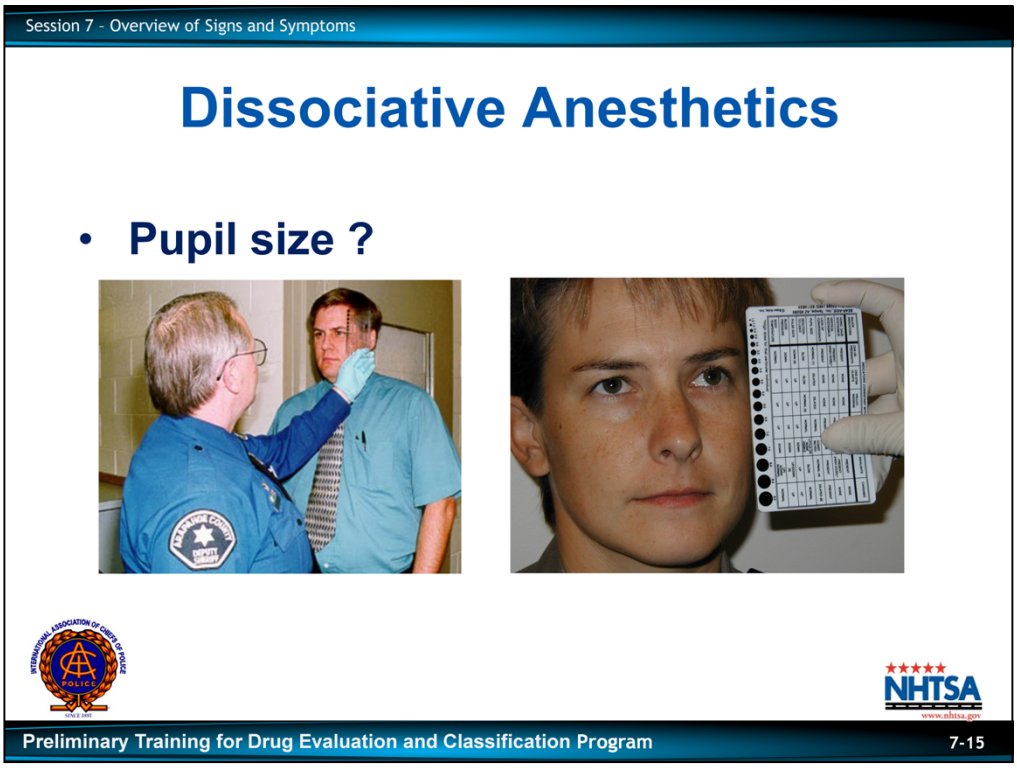
Vertical Gaze Nystagmus usually will be present.

Write "Present" on the VGN line for Dissociative Anesthetics.

Ask: "Do Dissociative Anesthetics cause the eyes to be unable to converge?"

Lack of Convergence usually will be present.

Write "Present" on the LACK CONV line for Dissociative Anesthetics.



Ask: "How do Dissociative Anesthetics effect pupil size?"

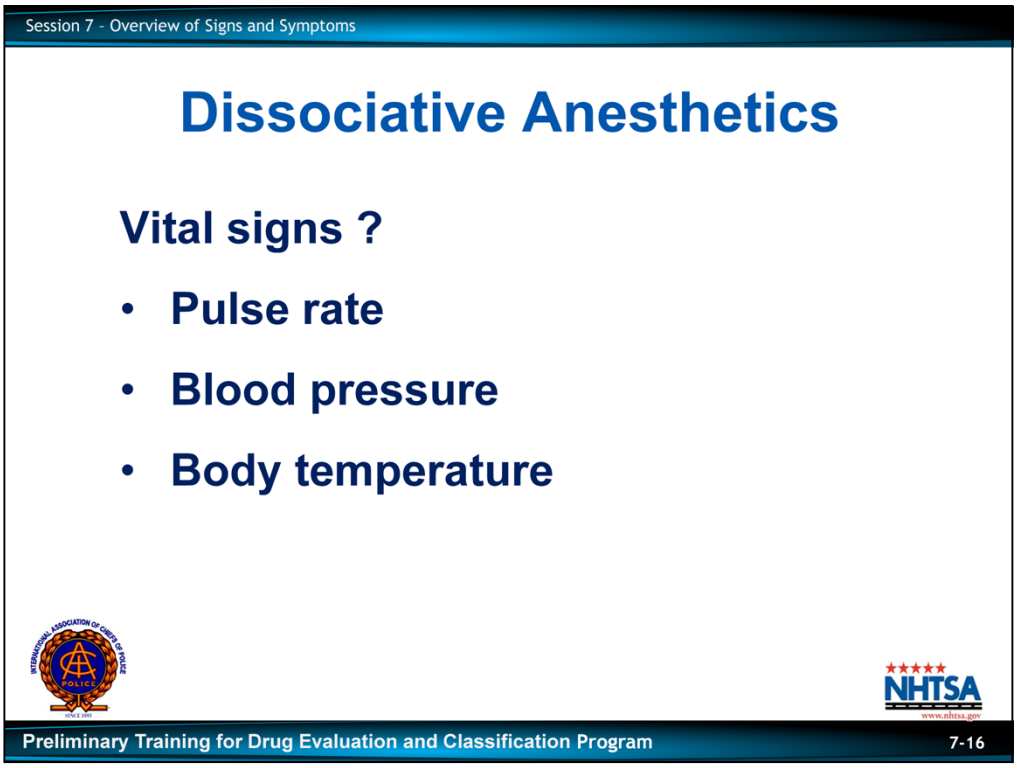
Dissociative Anesthetics do not normally effect pupil size; therefore, a person under the influence of a Dissociative Anesthetic, such as PCP usually will have pupils that are in the DRE average ranges.

Write "Normal" on the PUPIL SIZE line for Dissociative Anesthetics.

Actual DRE evaluations conducted on persons impaired by DXM resulted in pupils in the average size ranges.

Dissociative Anesthetics normally will not effect pupillary reaction to light.

Write "Normal" on the RCTN LIGHT line for this category.



Indicators of Dissociative Anesthetic Influence Found in Checks of Vital Signs

Ask: "How do Dissociative Anesthetics affect pulse rate?"

Dissociative Anesthetics usually increase pulse rate.

Write "Up" on the PULSE line for this category.

Ask: "How do Dissociative Anesthetics affect blood pressure?"

Dissociative Anesthetics usually elevate blood pressure.

Write "Up" on the BLOOD PRESS line for this category.

Ask: "How do Dissociative Anesthetics affect body temperature?"

PCP and its analogs usually elevate body temperature. Dextromethorphan may or may not rise temperature.

Write "Up" on the TEMP line for this category.

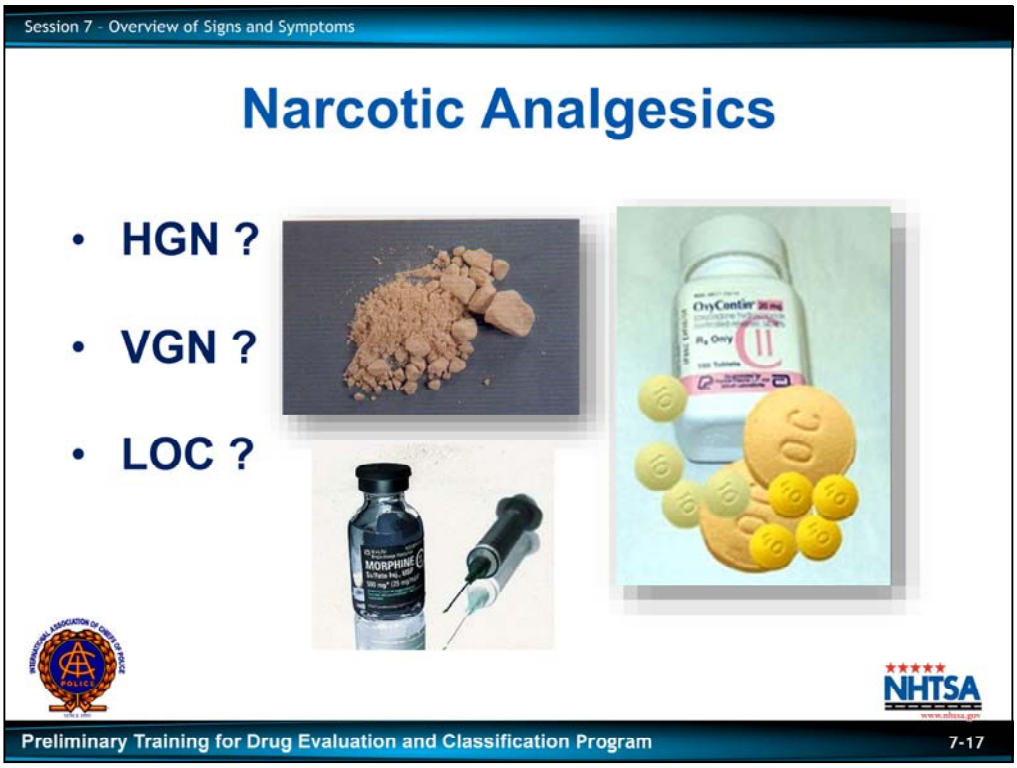
Ask: "How do Dissociative Anesthetics affect muscle tone?

Dissociative Anesthetics usually cause rigid muscle tone.

Write "Rigid" on the MUSCLE TONE line for Dissociative Anesthetics.

Point out that PCP tends to produce the eye indicators associated with Depressants, and the vital sign indicators associated with CNS Stimulants or Hallucinogens.

Solicit participants' questions about Dissociative Anesthetics.



E. Narcotic Analgesics

Narcotic Analgesics include some natural derivatives of opium as well as some synthetic drugs.

Ask participants to name some examples of Narcotic Analgesics. Make sure the examples include some natural opiates as well as some synthetics.

Indicators of Narcotic Analgesic Influence Found in Eye Exams

Ask participants: "Do Narcotics cause Horizontal Gaze Nystagmus?"

HGN will not be present.

Write "None" on the HGN line for Narcotics.

Ask: "Do Narcotics cause Vertical Gaze Nystagmus?"

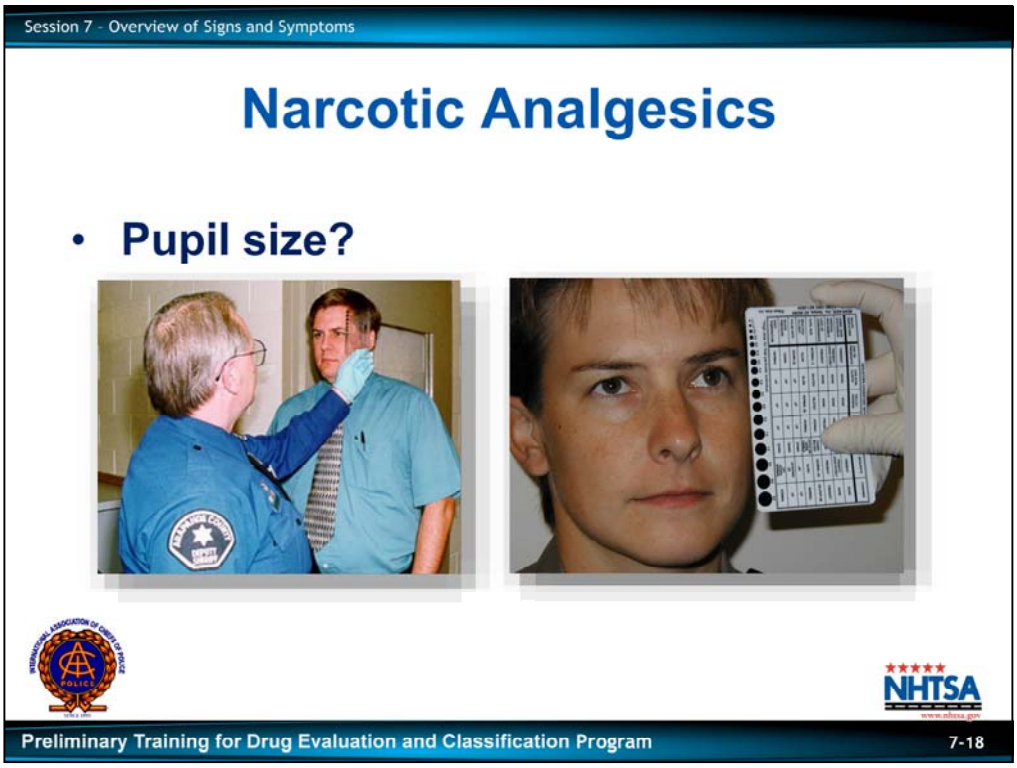
Vertical Gaze Nystagmus will not be present.

Write "None" on the VGN line for Narcotics.

Ask: "Do Narcotics cause the eyes to be unable to converge?"

Under the influence of Narcotics, the eyes should still be able to converge; therefore, Lack of Convergence usually is not present.

Write "None" on the LACK CONV line for Narcotics.



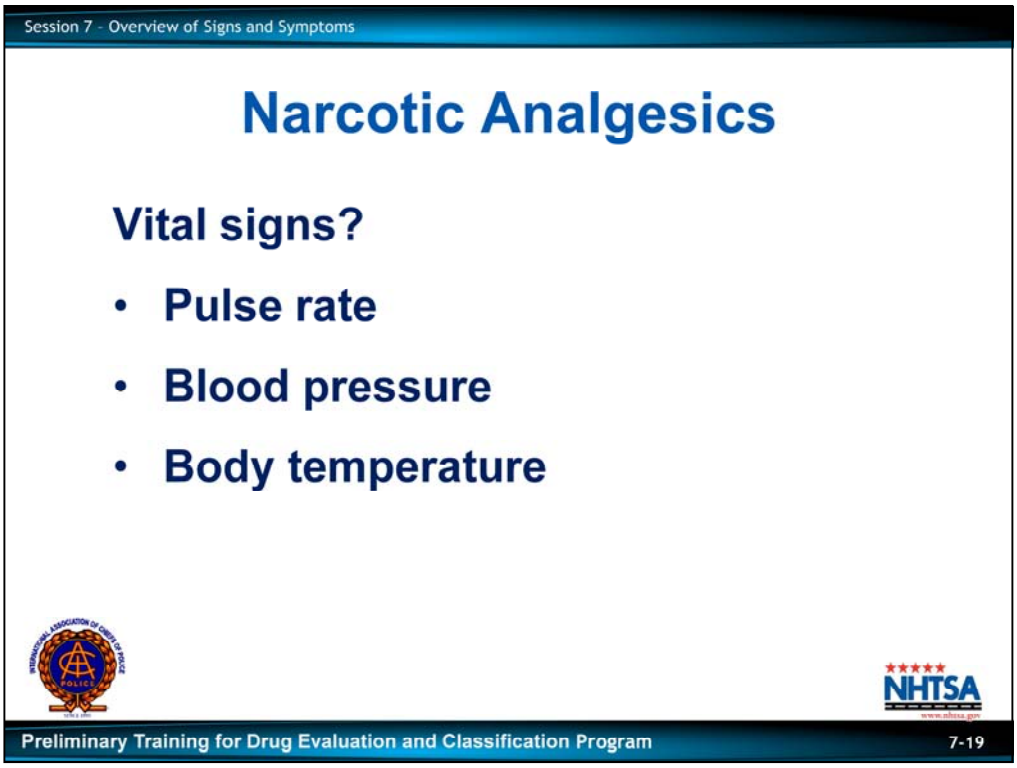
Ask: "How do Narcotics effect pupil size?"

Narcotic Analgesics usually cause a very noticeable constriction of the pupils.

Write "Constricted" on the PUPIL SIZE line for Narcotics

Though there is always some reaction to light, the constricted pupils caused by Narcotic Analgesics can make it nearly impossible to perceive a change in pupil size. However, when observed it will generally be little or none visible.

Write "Little or None Visible" on the RCTN LIGHT line for Narcotics.



Indicators of Narcotic Analgesic Influence Found in Checks of Vital Signs

Ask: "How do Narcotic Analgesics affect pulse rate?"

Narcotic Analgesics usually lower pulse rate.

Write "Down" on the PULSE line for Narcotics.

Ask: "How do Narcotic Analgesics affect blood pressure?"

Narcotic Analgesics usually lower blood pressure.

Write "Down" on the BLOOD PRESS line for Narcotic Analgesics .

Ask: How do Narcotic Analgesics affect body temperature?"

Narcotics usually lower body temperature.

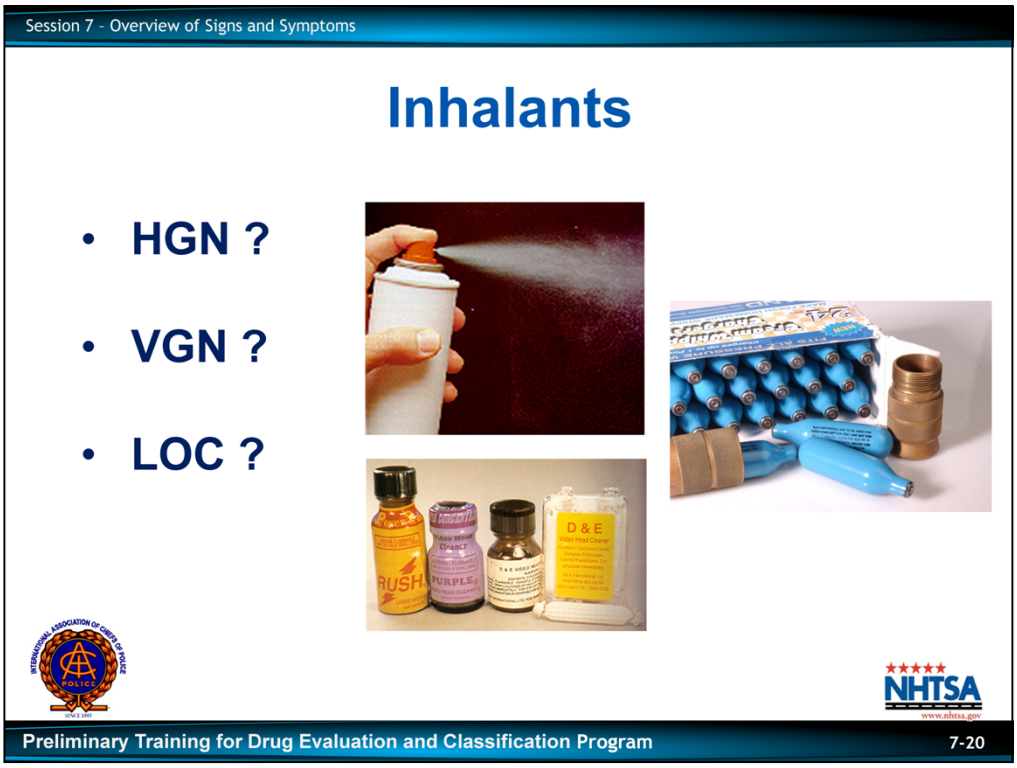
Write "Down" on the TEMP line for Narcotic Analgesics .

Ask: "How do Narcotic Analgesics affect muscle tone?"

With a Narcotic Analgesic, muscle tone will be flaccid.

Write "Flaccid" on the MUSCLE TONE line for Narcotic Analgesics .

Solicit participants' questions about Narcotic Analgesics.



F. Inhalants

The category of Inhalants includes a wide variety of gases and fumes that have mind-altering effects.

Ask participants to name some commonly abused Inhalants.

- Not all Inhalants affect their users in exactly the same way.
- There is probably less consistency in the signs and symptoms of Inhalants than there is with any other category.
- When we talk of the signs and symptoms of Inhalants, we often must qualify our statements.
- For example, we may say that a particular effect will be observed “for most Inhalants.”

Indicators of Inhalant Influence Found in Eye Exams

Ask participants: “Do Inhalants cause HGN?”

With most Inhalants, HGN usually will be present.

Write “Present” on the HGN line for Inhalants.

Ask: “Do Inhalants cause Vertical Gaze Nystagmus?”

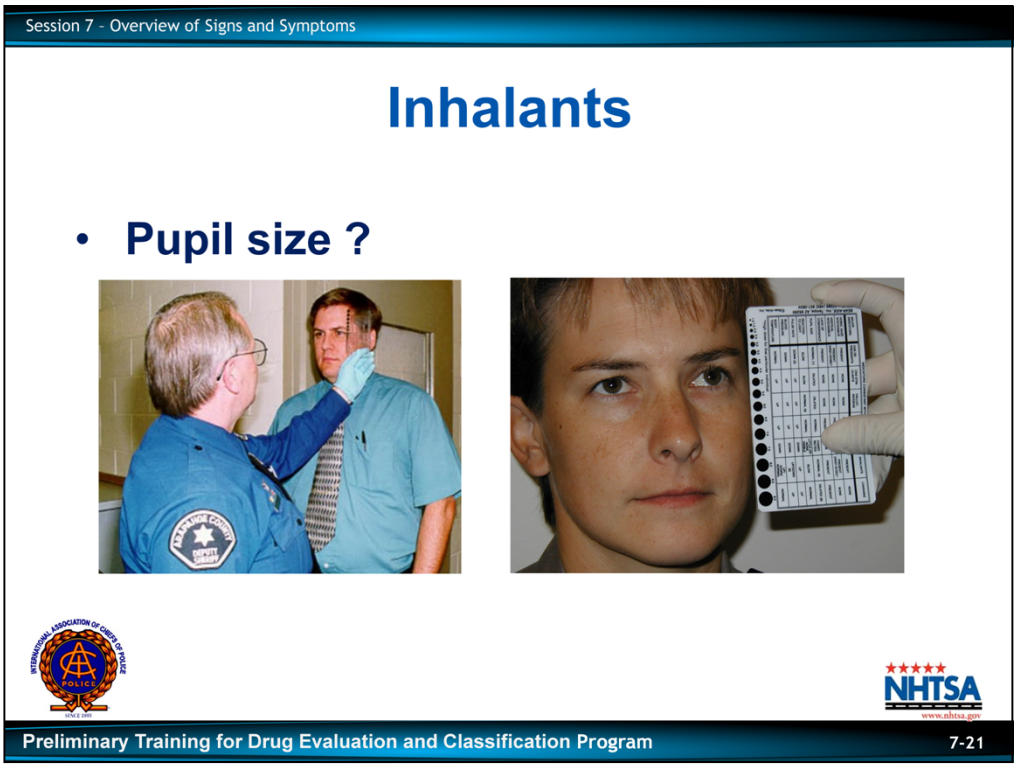
With most Inhalants, Vertical Gaze Nystagmus may be present, especially with large doses.

Write “Present” on the VGN line for inhalants. Denote in parentheses “(High Doses).”

Ask: “Do Inhalants cause the eyes to be unable to converge?”

Under the influence of Inhalants, Lack of Convergence usually will be present.

Write “Present” on the LACK CONV line for Inhalants.



The effect of Inhalants on pupil size depends on the particular substance inhaled.

Ask: Do Inhalants affect pupil size?

Most inhalants usually leave the pupils in the DRE average ranges.

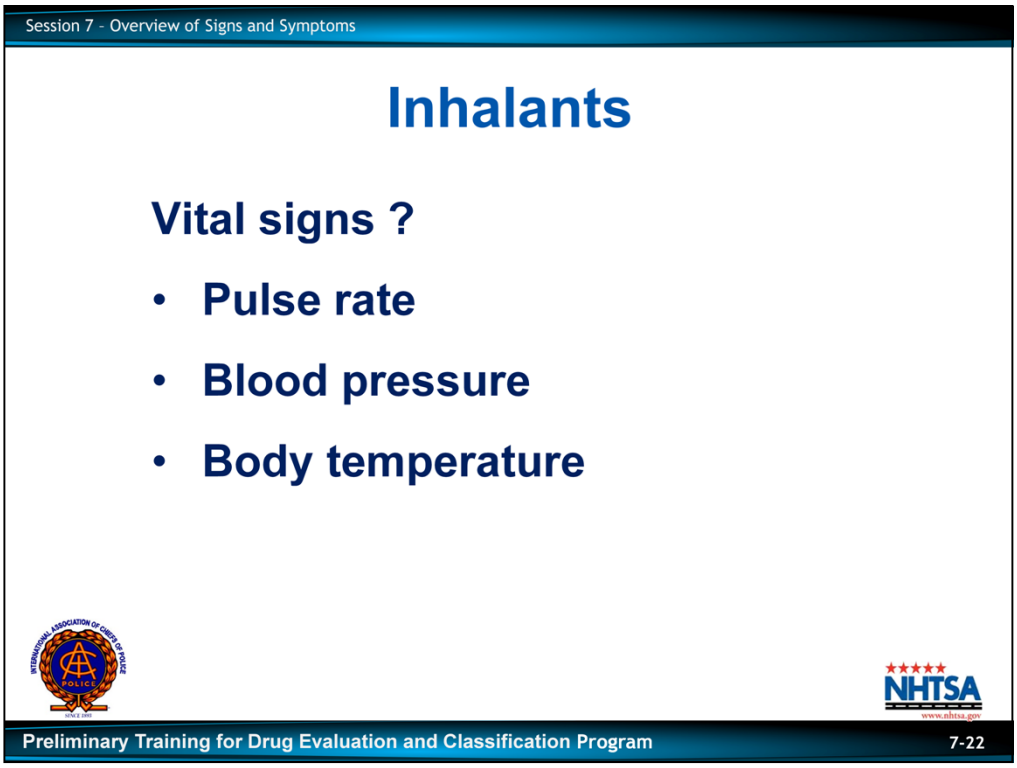
Write "Normal" on the PUPIL SIZE line for Inhalants.

Some inhalants may cause pupil dilation.

Put a (4) next to "Normal" and write "Normal, but may be dilated" below the matrix.

Depending on the substance used, Inhalants may cause a slowed reaction to light or the pupils may react normally. However, the most frequently observed effect will be a sluggish reaction to light.

Write "Slow" on the RCTN LIGHT line for Inhalants.



Indicators of Inhalant Influence Found in Checks of Vital Signs

Ask: "How do Inhalants affect pulse rate?"

Inhalants usually elevate pulse rate.

Write "Up" on the PULSE line for Inhalants.

Ask: "How do Inhalants affect blood pressure?"

Most inhalants usually elevate blood pressure, but some lower blood pressure.

Write "Up/Down" on the BLOOD PRESS line for Inhalants.

Put a (5) next to "Up/Down" and write down below the matrix "Down with Anesthetic Gases and Up with Volatile Solvents and Aerosols."

Ask: How do Inhalants affect body temperature?"

The effects of Inhalants on temperature depend on the particular substance inhaled.

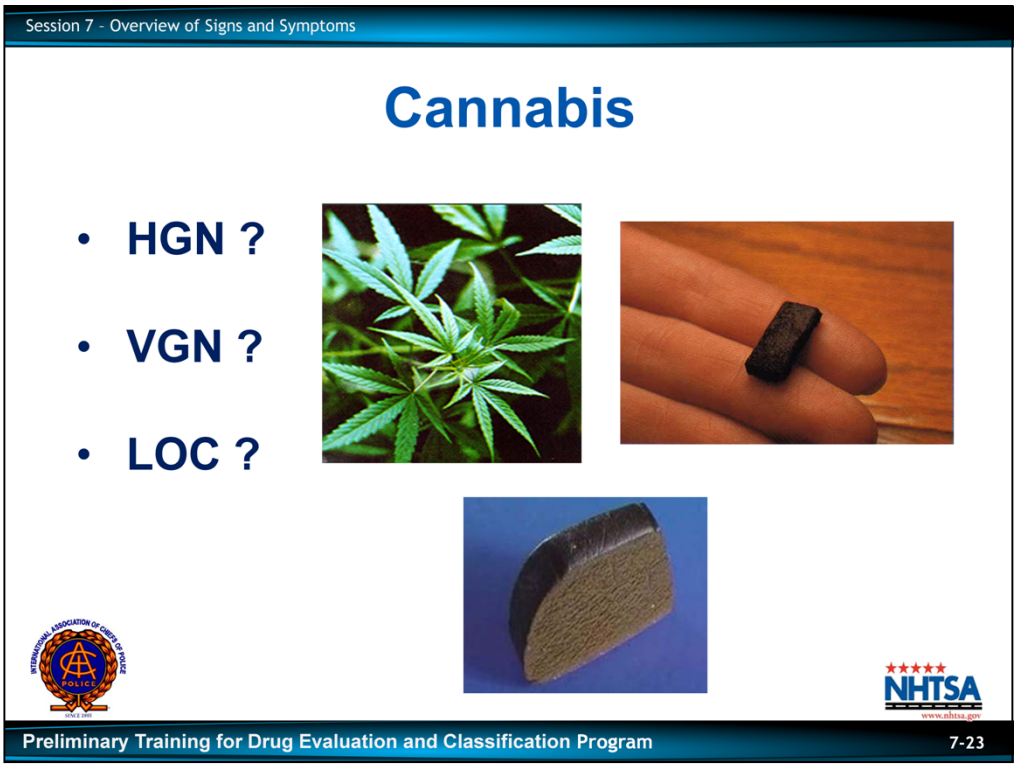
Write "Up/Down/or Normal" on the TEMP line for Inhalants.

Ask: "How do Inhalants affect muscle tone?"

Depending on the Inhalant, muscle tone will either be normal or flaccid.

Write "Normal or Flaccid" on the MUSCLE TONE line for Inhalants.

Solicit participants' questions about Inhalants.



G. Cannabis

Indicators of Cannabis Influence Found in Eye Exams

Ask participants: "Does Cannabis cause Horizontal Gaze Nystagmus?"

HGN will not be present.

Write "None" on the HGN line for Cannabis.

Ask: "Does Cannabis cause Vertical Gaze Nystagmus?"

Vertical Gaze Nystagmus will not be present.

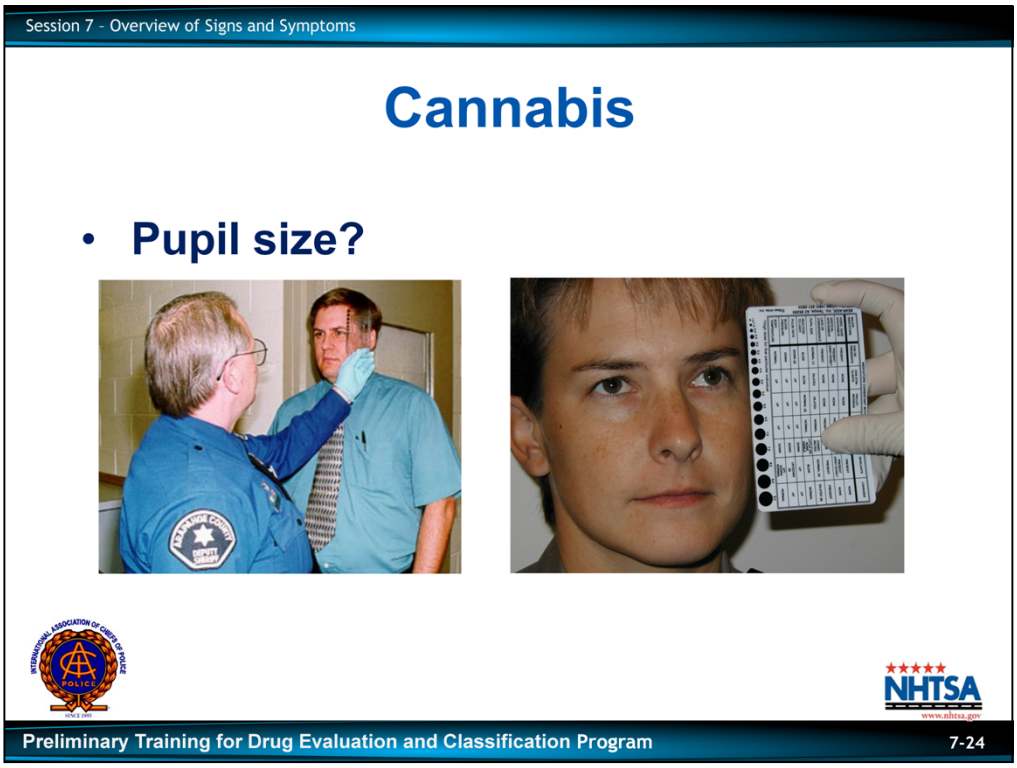
Write "None" on the VERT NYST line for Cannabis.

Ask: "Does Cannabis cause the eyes to be unable to converge?"

Under the influence of Cannabis, Lack of Convergence will be present.

Write "Present" on the LACK CONV line for Cannabis.

Point out that Cannabis is the only category that causes Lack of Convergence but does not cause nystagmus.



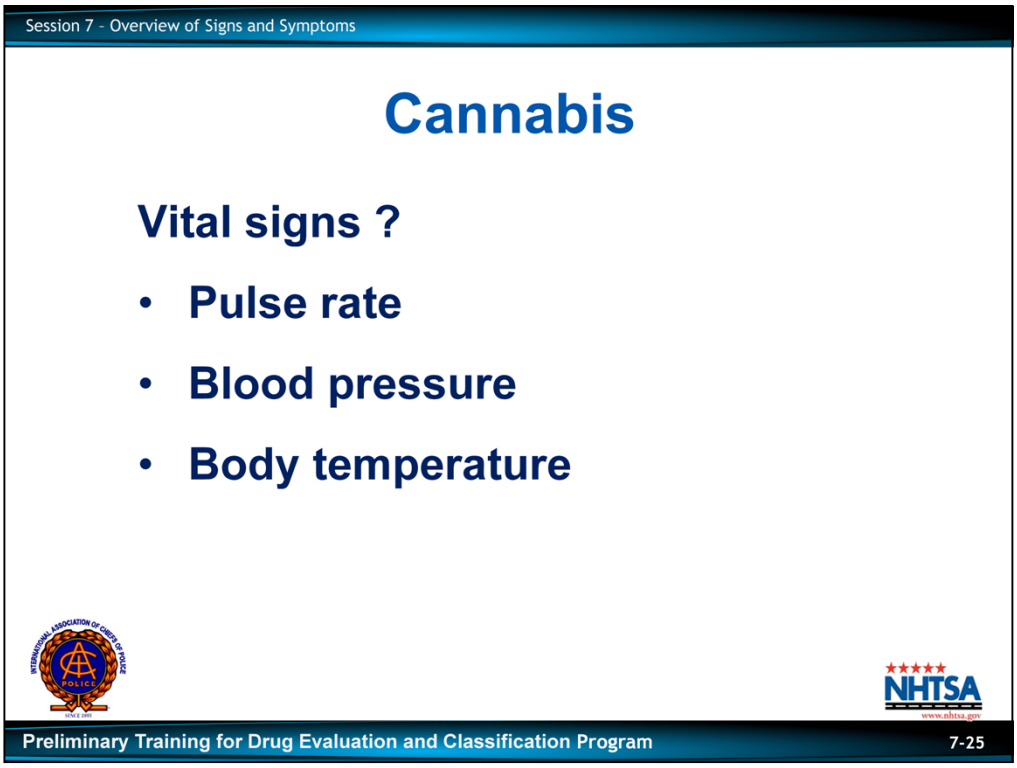
Ask: "How does Cannabis affect pupil size?"

Under the influence of Cannabis, the pupils may be dilated or possibly within the DRE average ranges.

Write "Dilated" on the PUPIL SIZE line for Cannabis. Put a (6) next to "Dilated" and write "Possibly normal."

The pupillary reaction to light will appear normal when under the influence of Cannabis.

Write "Normal" on the RCTN LIGHT line for Cannabis.



Indicators of Cannabis Influence Found in Checks of Vital Signs

Ask: "How does Cannabis affect pulse rate?"

Cannabis usually elevates pulse rate.

Write "Up" on the PULSE line for Cannabis.

Ask: "How does Cannabis affect blood pressure?"

Cannabis usually elevates blood pressure.

Write "Up" on the BLOOD PRESS line for Cannabis.

Ask: "How does Cannabis affect body temperature?"

Cannabis usually leaves temperature near the average body temperature ranges.

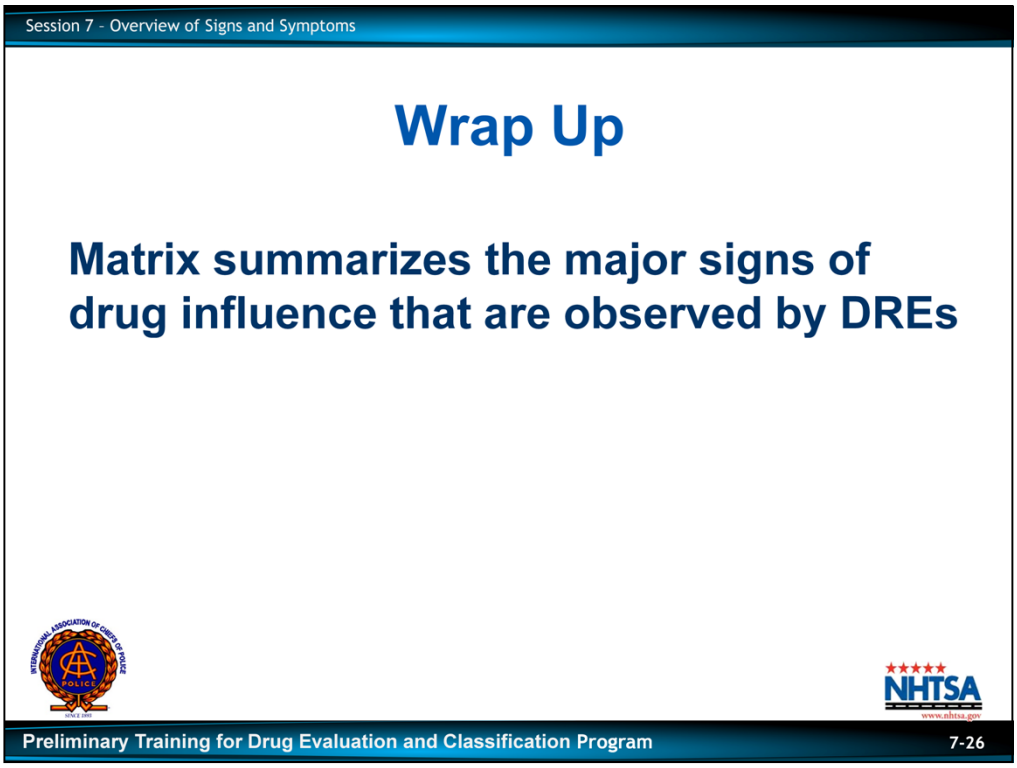
Write "Normal" on the TEMP line for Cannabis.

Ask: "How does Cannabis affect muscle tone?"

Cannabis usually causes normal muscle tone.

Write "Normal" on the MUSCLE TONE line for Cannabis.

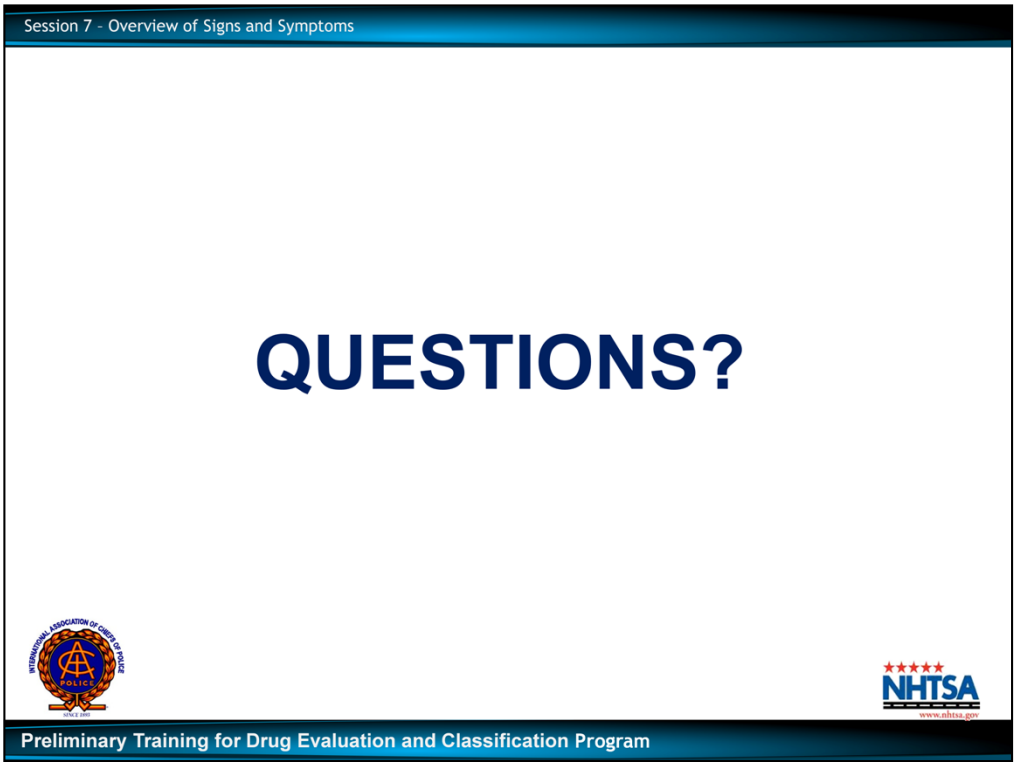
Solicit participants' questions about Cannabis.



H. Wrap-Up

Point out that the matrix summarizes the major signs of drug influence that are observed by DREs. But emphasize there are other signs that a DRE considers in reaching a determination as to the category or combination of categories affecting a particular subject. These additional signs will be covered in depth during the seven-day DRE School.

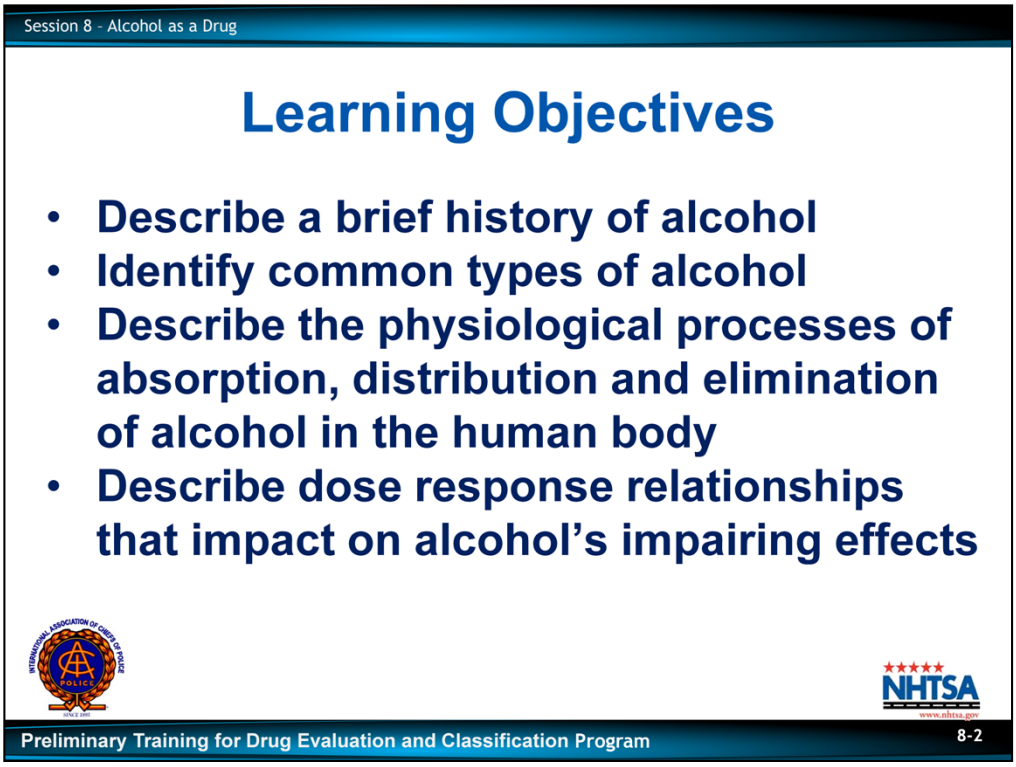
Solicit participants' questions.



Drug Matrix

INDICATOR	CNS Dep	CNS Stim	Hallucinogens	Dissoc. Anesthetics	Narcotic Analgesics	Inhalants	Cannabis
HGN							
Vertical Gaze Nystagmus							
Lack of Convergence							
Pupil Size							
Reaction to Light							
Pulse Rate							
Blood Pressure							
Body Temperature							
Muscle Tone							

Prior to the start of this session, draw the Alcohol Symptomatology chart located in Slide 8-22 on the dry erase board or flip-chart.



Briefly review the objectives, content and activities of this session.

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

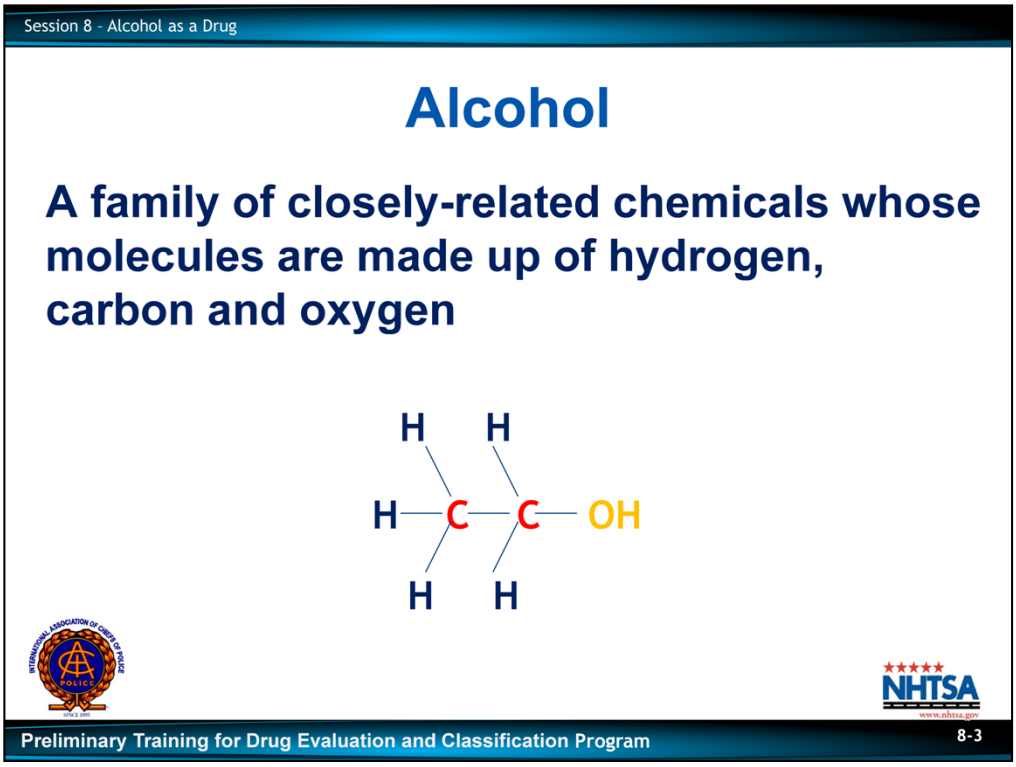
- Describe a brief history of alcohol.
- Identify common types of alcohols.
- Describe the physiological processes of absorption, distribution and elimination of alcohol in the human body.
- Describe does response relationships that impact alcohol's impairing effects.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Brief Overview of Alcohol	Instructor-Led Presentations
B. Physiological Processes	Oral Quiz
C. Symptomatology of Alcohol	
D. Dose-Response Relationships	
E. Questions for Review	

Pose this question to the class: "This is a course on drug impairment recognition. Why do we have a session on alcohol?"
GUIDE the participants' responses to bring out these and other appropriate points:

- Alcohol is a drug. In fact, alcohol is the most commonly abused drug.
- As DREs, the participants will often encounter persons who are under the combined influence of alcohol and some other drug.

By understanding the basic fundamental concepts of how alcohol effects the body, participants will gain a better understanding of the concept of how drugs effect the body.



A. A Brief Overview of Alcohol

The word “alcohol” refers to a number of distinct but similar chemicals.

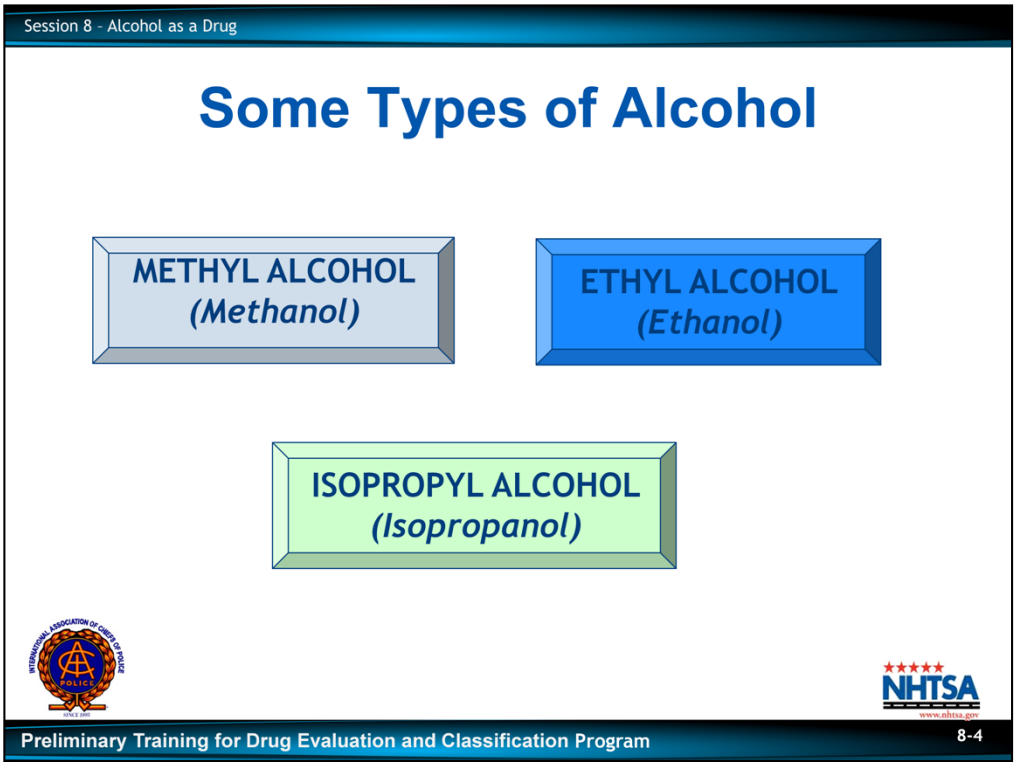
- Each of the chemicals that is called an “alcohol” is composed of the three elements: hydrogen, carbon, and oxygen.
- Each of the “alcohols” is a drug within the scope of our definition.

Clarification: All of the “alcohols” are chemicals that impair driving ability.

- But only one can be tolerated by the human body in substantial quantities.

Clarification: Most “alcohols” are highly toxic and will cause blindness or death if consumed in significant quantities. Only one is intended for human consumption.

Ask participants: What are the names of some of the chemicals that are “alcohols”?



Common Alcohols

Three of the more commonly known “alcohols” are Methyl, Ethyl, and Isopropyl.

- Methyl Alcohol, also known as Methanol, or “wood alcohol.”
- Ethyl Alcohol, also known as Ethanol, or “beverage alcohol.”

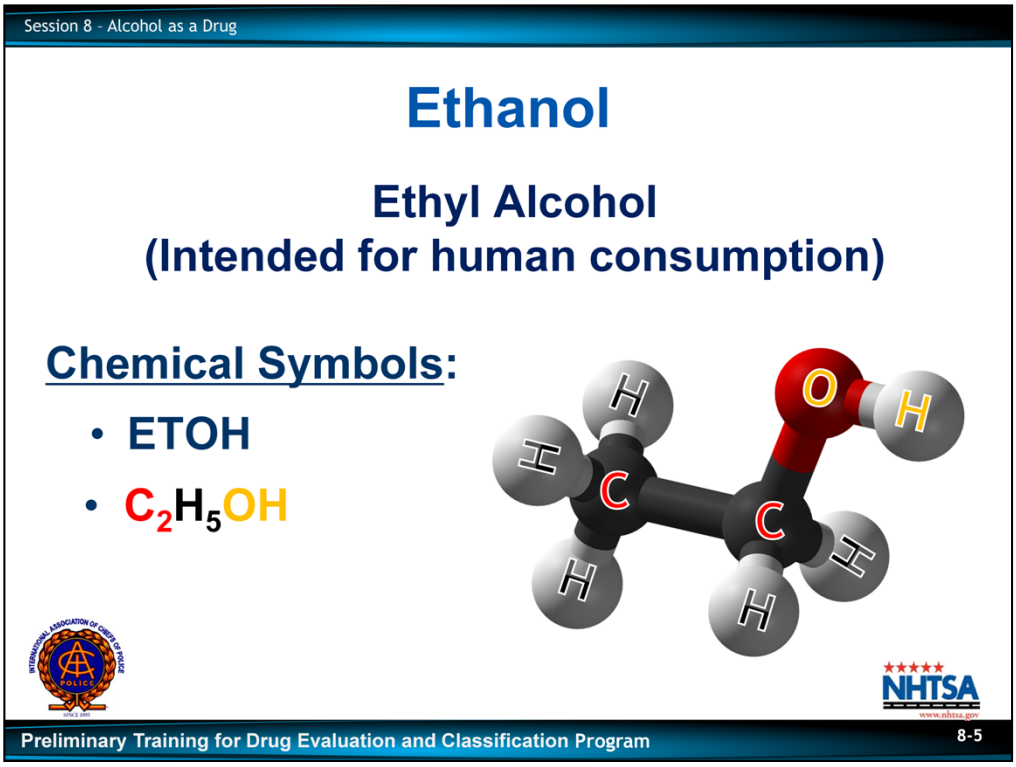
Ethanol is the only kind of alcohol that humans can tolerate in significant quantities.

- Isopropyl Alcohol, also known as Isopropanol, or “rubbing alcohol.”

Ethanol Alcohol

Ethanol is the kind of alcohol on which we will focus, because it is the only type intended for human consumption.

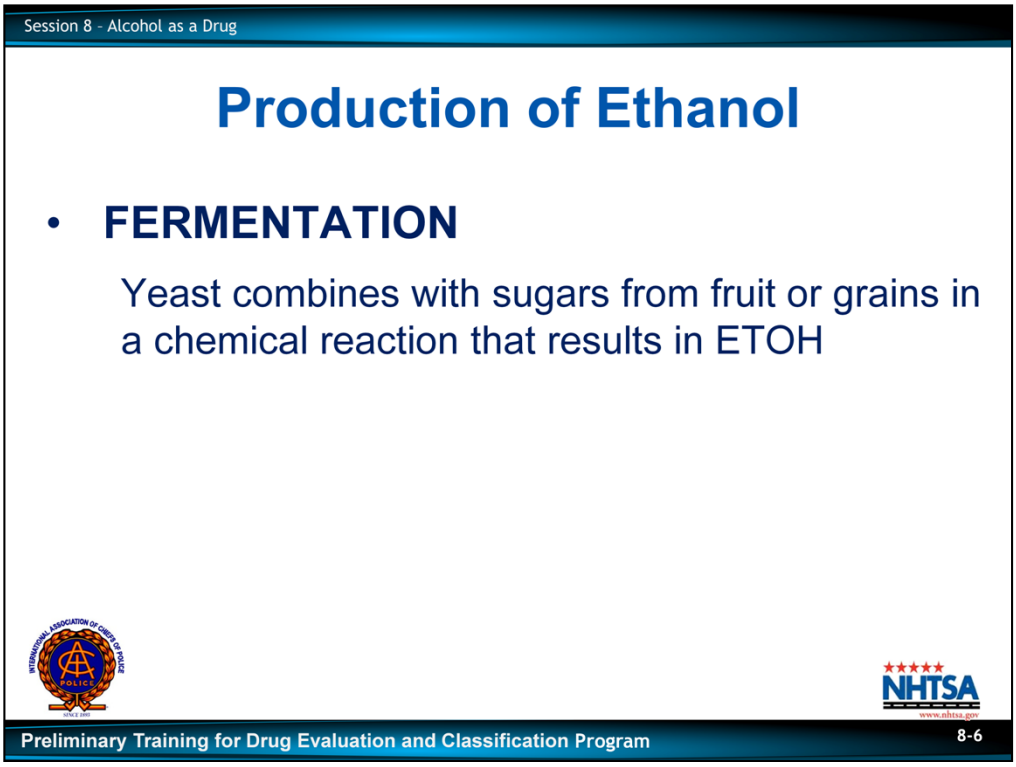
- Ethanol is the active ingredient in beer, wine, whiskey, and other alcoholic beverages intended for drinking.
- Like all “alcohols,” ethanol is composed of hydrogen, carbon and oxygen.
- Chemists use a number of different symbols to represent ethanol.



- For our purposes, we will use the symbol “ETOH.”

- The “ET” represents “ethyl” and the “OH” represents an oxygen atom and hydrogen atom, bonded together in what the chemists refer to as the “hydroxyl radical.” All alcohols have a hydroxyl radical in their molecules.

Ethanol has been around for a long time. People drank it long before they learned to write.



Ethanol is a naturally occurring drug. That is, it is produced through a process called fermentation.

In fermentation, spores of yeast, carried by the wind, come in contact with fruit or grain that has fallen to the ground.

Sugars in the fruit or grain chemically react with yeast, and produce ethanol.

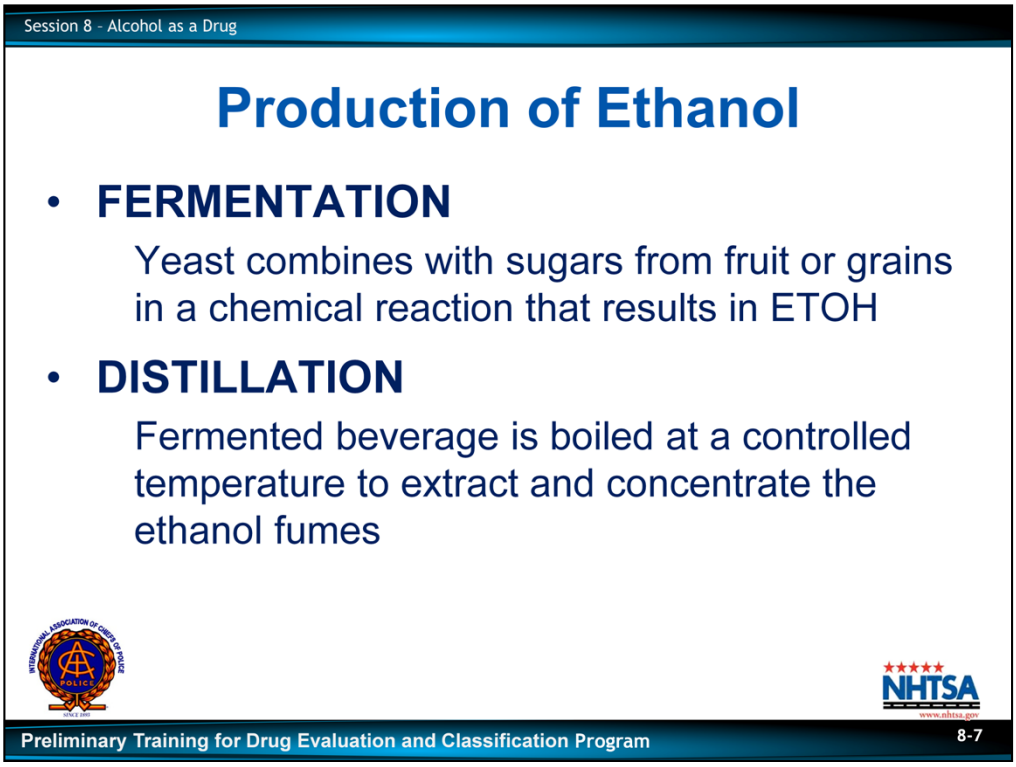
Humans almost certainly first encountered ethanol that had been produced accidentally in this fashion.

Of course, today we don't sit around waiting for the wind to bring yeast to fallen fruit. Most fermentation takes place on purpose, under controlled conditions.

Through the process of fermentation, we can produce a beverage that has, at most, about 14% ethanol.

Ask participants: "Why can't fermentation produce a higher ethanol concentration than 14%?"

When the ethanol concentration reaches 14%, the yeast die, so fermentation stops.



If we want to have higher concentration ethanol beverages, we have to use another step in the production.

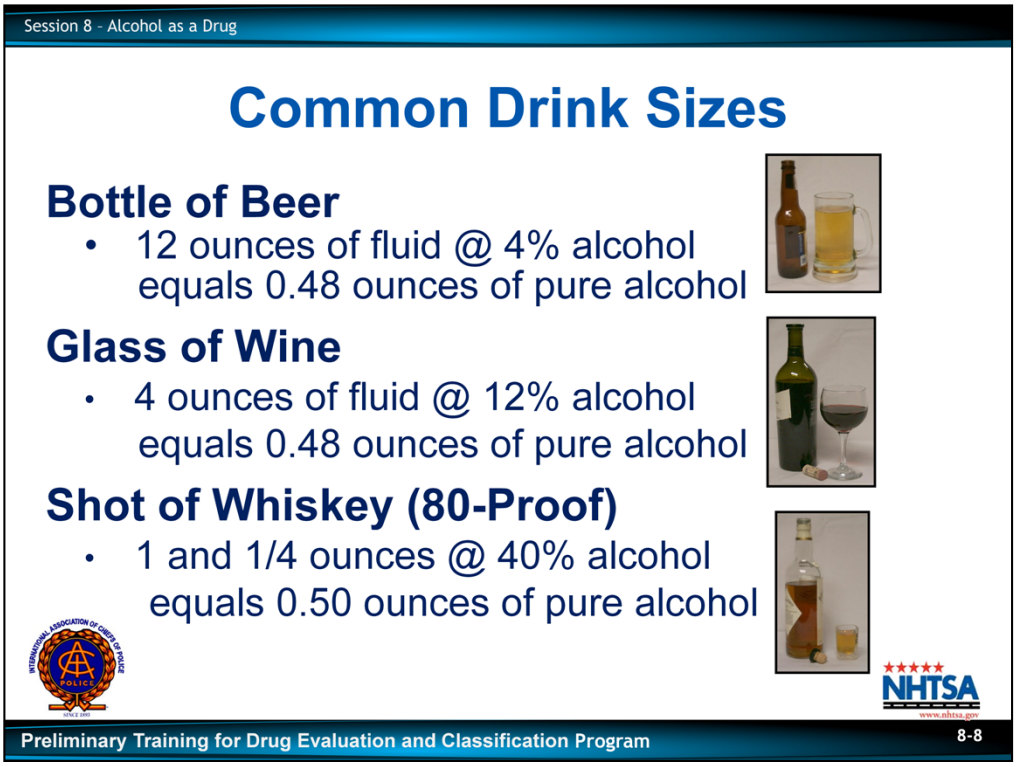
Distillation is the process used to produce a higher concentration of ethanol.

In distillation, a fermented beverage is heated to the point where the ethanol begins to boil.

- Ethanol starts to boil at a lower temperature than water.
- The ethanol vapor is collected and allowed to cool until it turns back into a liquid.
- By repeating the process of heating the liquid and collecting and cooling the vapors, higher and higher concentrations of ethanol can be produced.
- Ethanol beverages that are produced by distillation are called distilled spirits.

Ask participants to name some "distilled spirits" (e.g., whiskey, vodka, gin, rum, etc.)

Over the centuries in which people have produced ethanol, some general or common sized servings of different beverages have evolved.



- Beer is usually served in 12-ounce cans or bottles. Since beer averages an ethanol concentration of four percent, a can or bottle contains a bit less than one-half ounce of pure ethanol.

- Four ounces of wine with an alcohol concentration of 12% contains approximately one half ounce of pure alcohol.

- Whiskey and other distilled spirits are dispensed in a “shot” glass, which usually contain one and one-quarter ounces of liquid.

- Since whiskey usually has an ethanol concentration of 40%, a “shot” of whiskey has exactly one-half ounce of pure ethanol.

Point out that the “Proof” of a distilled spirit is equal to twice the ethanol concentration.

For all practical purposes, standard sized servings of beer, wine, and whiskey all pack the same “punch.”

Solicit participants’ comments and questions on this overview.

B. Physiological Processes

Alcohol is the most abused drug in the United States.

Ethanol is a Central Nervous System Depressant.

- It doesn't impair until it gets into the brain.
- It can't get into the brain until it first gets into the blood.
- It can't get into the blood until it first gets into the body.

Note: This concept is true with all drugs that impair.

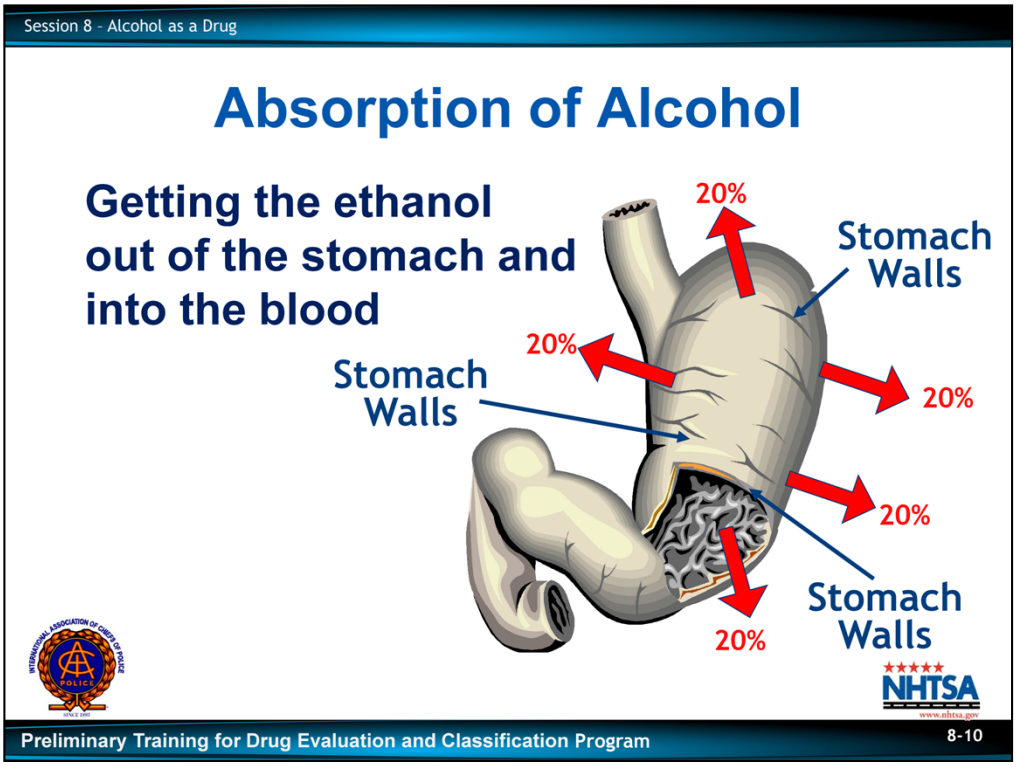
There are a number of ways in which alcohol can get into the body.

- It can be injected into a vein via hypodermic needle.
- It can be inhaled, i.e., alcohol fumes can be brought into the lungs, and some molecules will pass into the blood.

Note: A person would have to inhale concentrated alcohol fumes for a prolonged period of time in order to develop a significant blood alcohol concentration.

- It could also be inserted as an enema and ingested by quickly passing from the large intestine into the blood.

But the vast majority of times that alcohol gets into the body, it gets there via drinking.



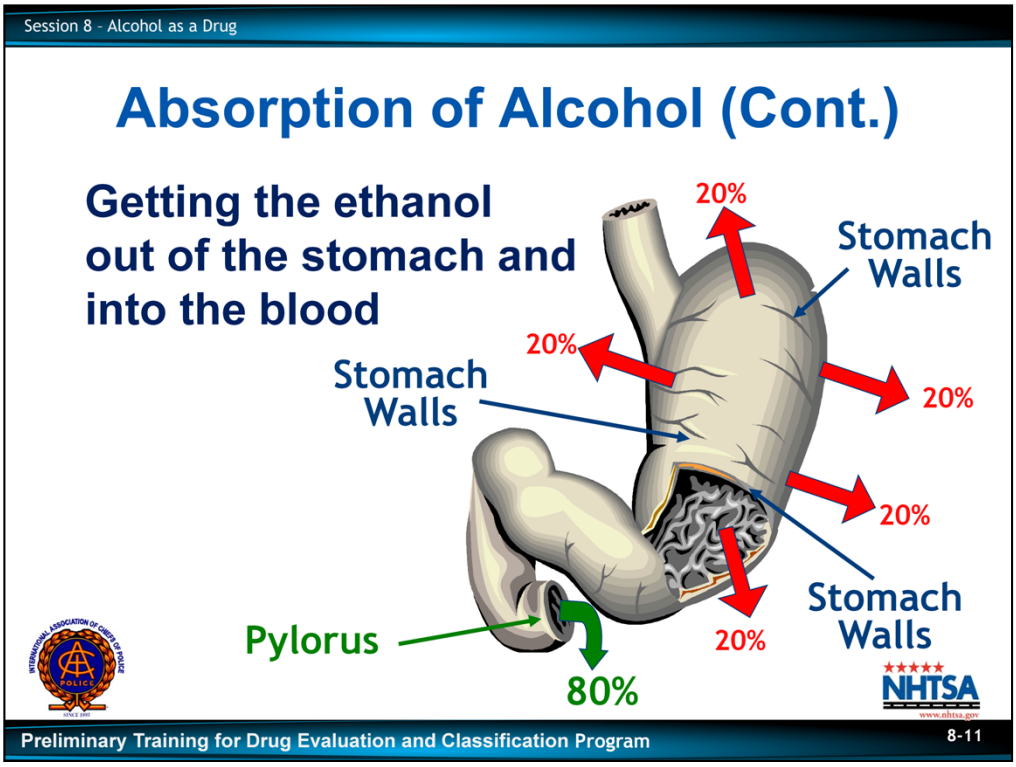
Once the alcohol is in the stomach, it will take two routes to get into the blood.

Point to that "route of passage" on visual.

- One interesting thing about alcohol is that it is able to pass directly through the stomach walls.
- Under normal conditions, about 20% of the alcohol a person drinks gets into the blood by diffusing through the walls of the stomach.
- But most of the alcohol usually passes through the base of the stomach into the small intestine, from which it passes quickly into the blood.

Point to that "route of passage" on visual.

- Another interesting thing about alcohol is that it does not have to be digested before it can move from the stomach to the small intestine.
- When a person eats food, the food must remain for a time in the stomach.
- Acids and enzymes in the stomach must begin to break down the food to prepare it to pass to the lower portion of the gastrointestinal track.
- While the initial digestive process is underway, a muscle at the base of the stomach will constrict, and shut off the passage to the small intestine.



Point to the pylorus on the visual.

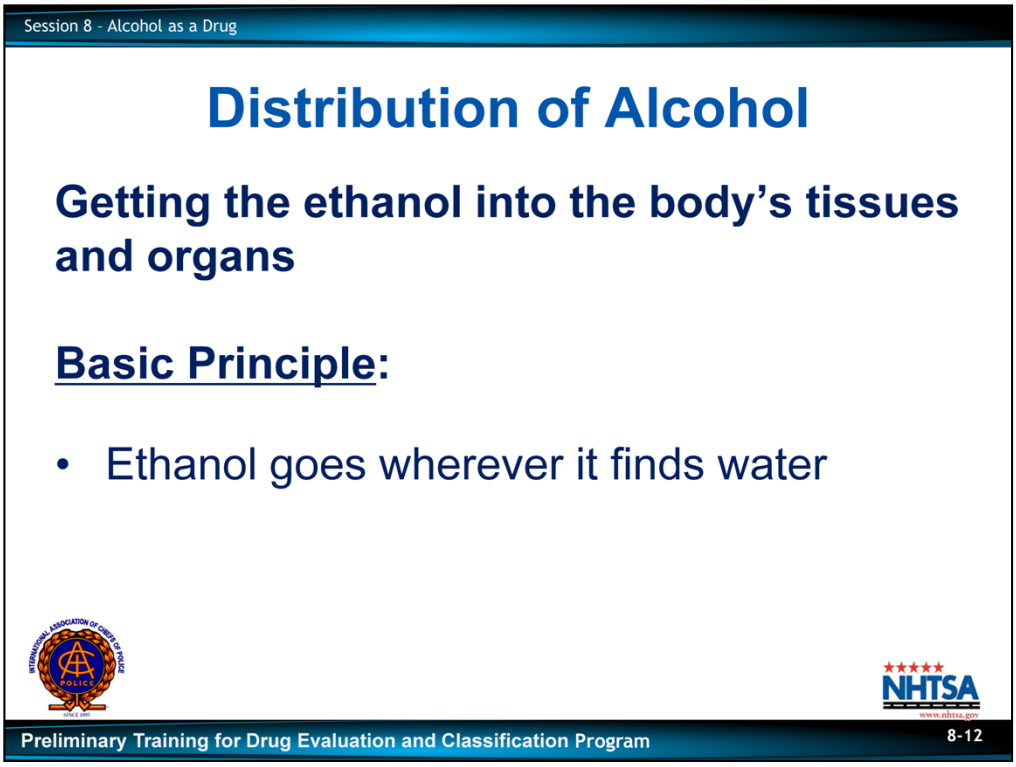
- Note the muscle called the pylorus, or pyloric valve.
- Since alcohol doesn't have to be digested, the pylorus does not constrict when alcohol enters the stomach.
- If we drink on an empty stomach, the pylorus stays wide open.
- The alcohol will pass immediately through the base of the stomach, into the small intestine, and quickly move into the bloodstream.

Ask this question: But what will happen if there is food in the stomach when the person drinks alcohol?

- Food will cause the pylorus to constrict.
- While the pylorus is closed, nothing will move from the stomach to the small intestine.
- Any alcohol that is in the stomach will be "trapped" there, along with the food.
- The alcohol will not get into the blood as quickly, and the blood alcohol concentration will not get as high, as if the drinking had been done on an empty stomach.
- While the alcohol is trapped in the stomach, the acids and enzymes will start to react with it and break it down.
- By the time the pylorus opens, some of the alcohol will have been chemically changed, so there will be less available to get into the blood.

Solicit participants' comments and questions about the absorption of alcohol into the blood.

- Once the alcohol gets into the blood, the blood will carry it to the various tissues and organs of the body



- Alcohol is attracted to water. The blood will deposit the alcohol in all the parts of the body where water is found.
- Parts of the body that have a lot of water will receive a lot of alcohol.
- Parts of the body that have only a little water will receive little alcohol.

Basic Principle: Ethanol goes wherever it finds water

Ask this question and solicit responses from participants: Which parts of the body have a lot of water?

Reveal answers once students have responded

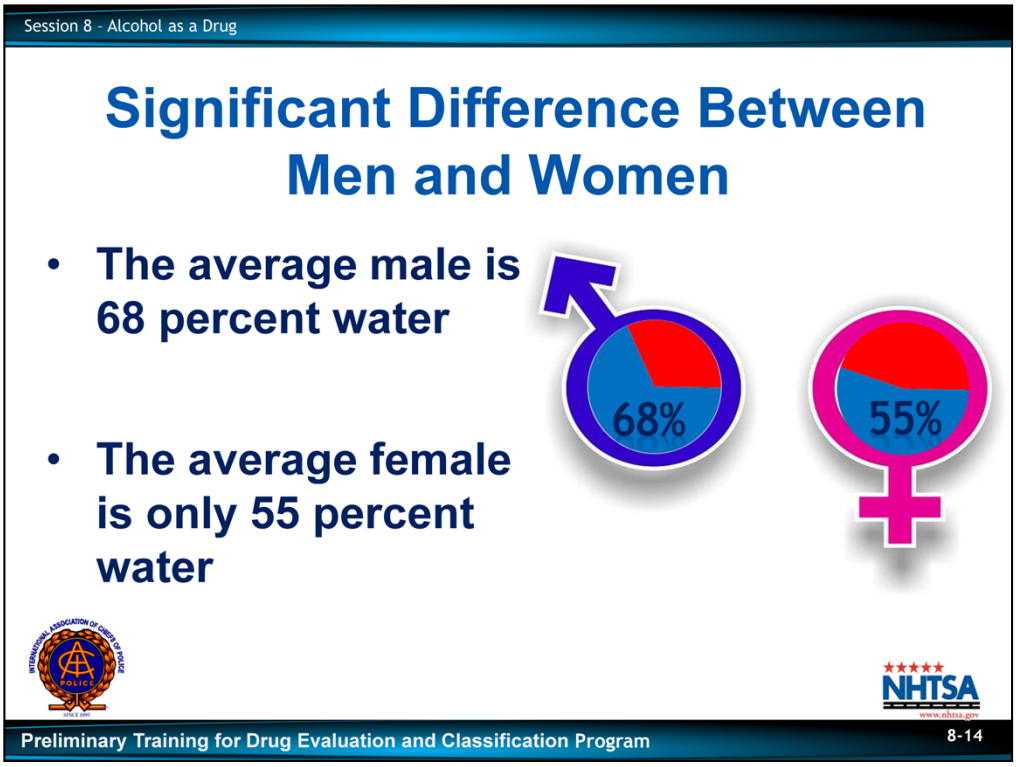
- Brain
- Liver
- Muscle tissue
- Kidney

Pose this question: "Which parts contain very little water?"

- Bones
- Fatty tissue

Point to that "fatty tissue" on visual.
The fatty tissue will receive very little of the alcohol.

Point to "muscle tissue" on visual.
The muscle tissue will receive a relatively high proportion of the alcohol that a person drinks.



Here is an interesting and significant difference between men and women: pound-for-pound, the average male has much more water in his body than the average female.

Ask participants to suggest why this significant difference exists.

- The female body has more fatty tissue than does the male body.

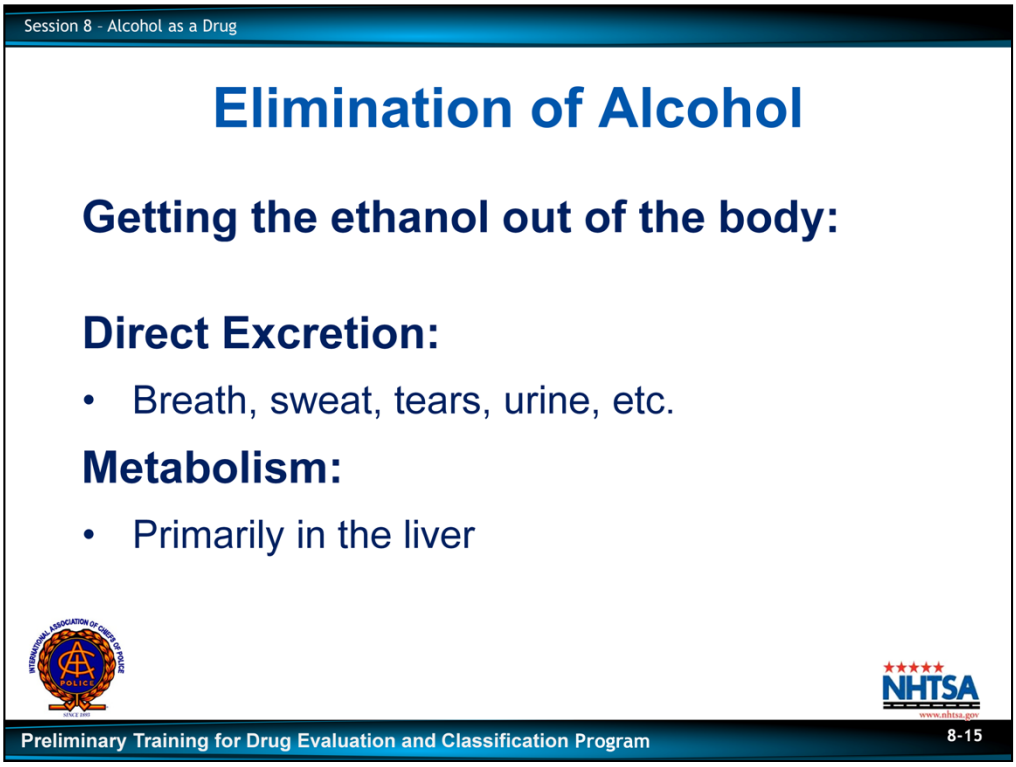
Clarification: The female's extra fatty tissue serves as a "shock absorber" and thermal insulator to protect a baby in the womb.

- Pound-for-pound, the average female has more fat and less muscle than does the average male.
- Since fatty tissue has very little water, the average female, pound-for-pound, has less water than the average male.
- This means that the average woman has fewer places in her body in which to deposit the alcohol she drinks.

Ask participants: Suppose a woman and a man who weigh the exact same drink exactly the same amount of alcohol under exactly the same conditions. Who will reach the higher BAC?

Solicit participants' comments and questions about the distribution of alcohol in the body.

- The woman's blood alcohol concentration will be higher than the man's because she has less water in which to distribute the alcohol.
- As soon as alcohol gets into the body, the body begins working to get rid of it.



- Some alcohol is simply expelled directly from the body, i.e., on the breath, in the sweat, in urine, etc.
- Relatively little of the alcohol we drink is directly expelled from the body.

Clarification: Only about 2 – 10% of the alcohol we consume is directly excreted in the breath, urine, etc.

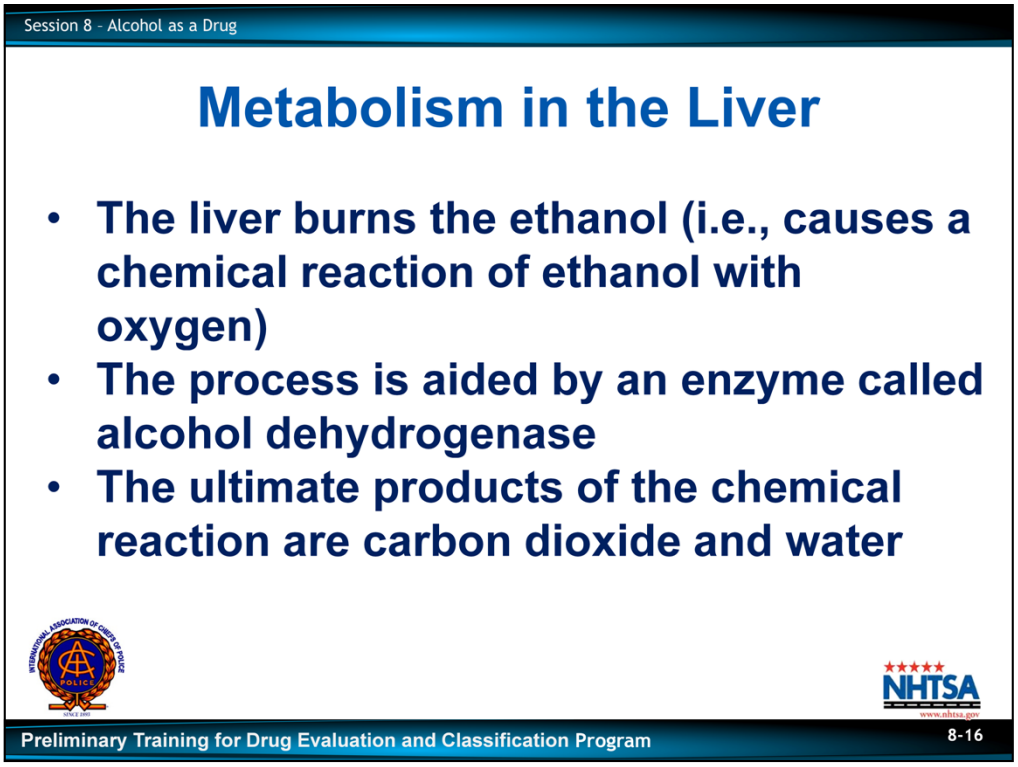
- The body eliminates most of the alcohol by chemically breaking it down.

Click to reveal the bottom part of the visual.

Ask participants: What organ in the body is primarily responsible for chemically breaking the alcohol down?

- The liver is primarily responsible for breaking down, or metabolizing, the alcohol.

Clarification: Some metabolism of alcohol also takes place in other parts of the body, including the brain. The liver does the vast majority of the job**.**



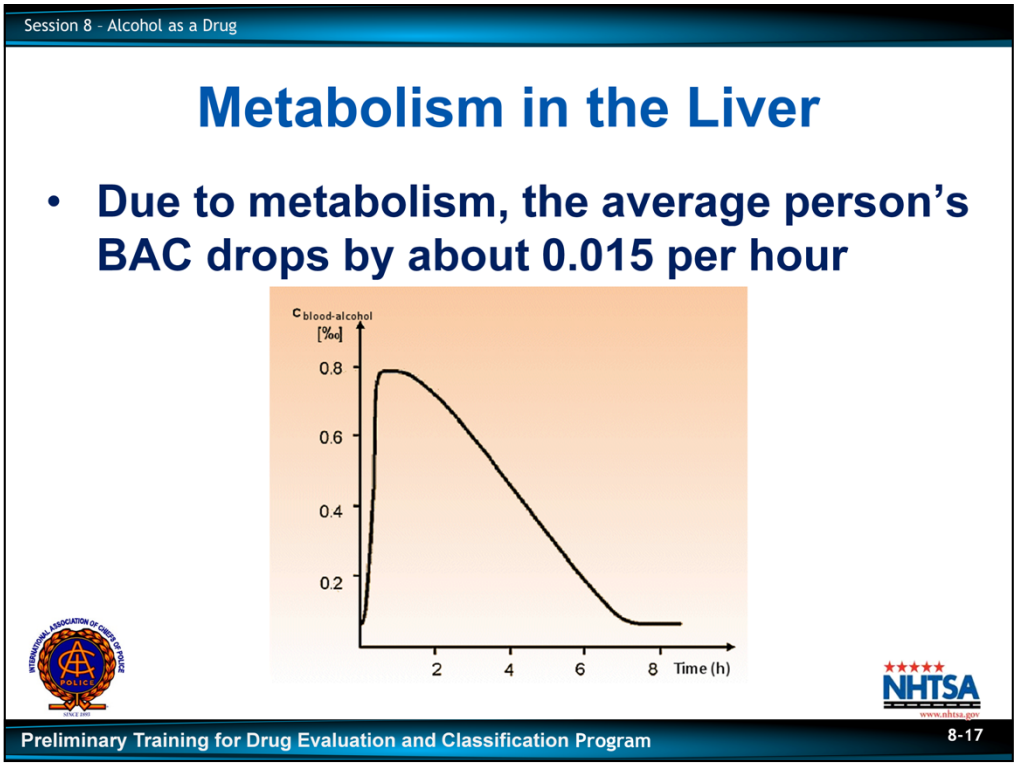
- Metabolism of alcohol actually consists of a slow, controlled burning of the alcohol.

Click to reveal the second "bullet."

- In the burning process, the alcohol combines with oxygen.
- The liver has an enzyme called alcohol dehydrogenase, which helps to speed up the reaction of oxygen with the alcohol.

Clarification: The enzyme does not react with the alcohol itself, but simply makes it easier for the oxygen to react with the alcohol. The technical term for something that helps a chemical reaction while not itself taking part in the reaction is a catalyst. Alcohol dehydrogenase is a catalyst for the metabolism of alcohol.

- The reaction of alcohol with oxygen ultimately produces carbon dioxide and water, which can be directly expelled from the body.



The speed with which the liver burns alcohol varies from person to person, and will change from time to time for any particular person.

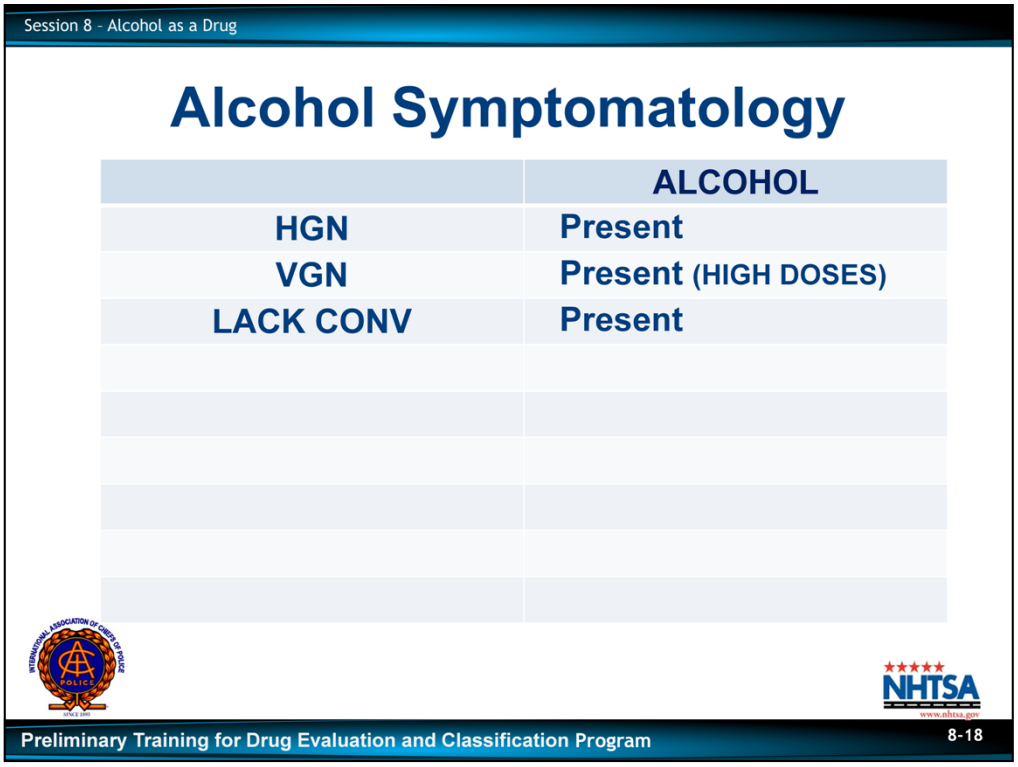
Pose this problem to the class: Suppose a person reaches a peak BAC of 0.15. How long will it take for his or her body to eliminate all of the alcohol? [Answer: ten hours. (0.15 – (x hours)(0.015/hour) = 0, x = 10]

- BUT ON THE AVERAGE: Due to metabolism, a person's BAC will drop by about 0.015 per hour. For the average male, a BAC of 0.015 is equal to the alcohol content of about two-thirds of a "standard drink". i.e., about two-thirds of a can of beer, or about two-thirds of a glass of wine, or two-thirds of a shot of whiskey.
- For the average woman, a BAC of 0.015 is equal to the alcohol content of only one-half of a "standard drink." So the average male can "burn up" about two-thirds of a drink in an hour. But the average female can only burn up about one-half of a drink in an hour.
- In other words: suppose a person gulps down a can of beer, or a glass of wine, or a shot of whiskey; if the person is an average man, it will take him about an hour and one-half to burn up that alcohol; if the person is a woman, it will take her about two hours.

Ask this question: How can we speed up the metabolism of alcohol?

- We can't speed it up.
- Drinking coffee won't help.
- A cold shower won't help.
- Exercise won't help.
- Our livers take their own sweet time burning the alcohol.

Solicit participants' comments and questions about the elimination of alcohol from the body.



C. Symptomatology of Alcohol

Prior to the start of this session, the instructor drew the chart on the dry erase board or flip-chart.

- ETOH may elevate the pulse rate in lower BAC levels.

Ask participants: "What category of drugs is alcohol most closely associated?"

Indicators of Alcohol Influence Found in Eye Exams

- HGN will be present.

Write "Present" on the HGN line.

Ask: "Does alcohol cause Vertical Gaze Nystagmus?"

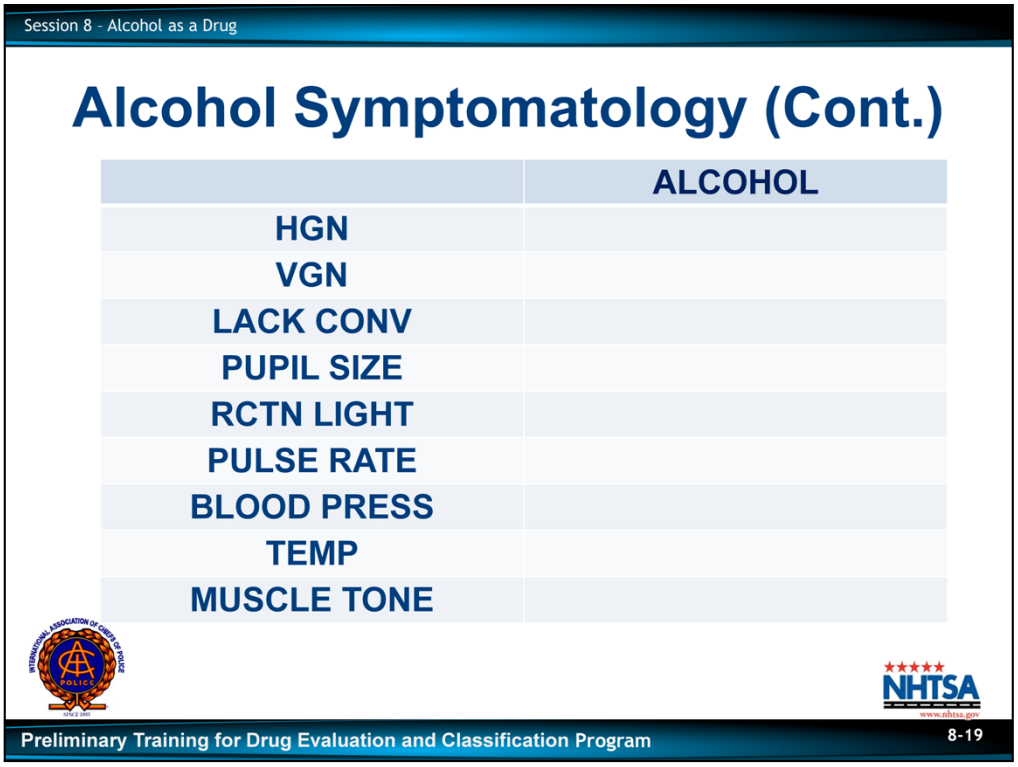
- Vertical Gaze Nystagmus may be present, especially with high doses (for that individual) of alcohol.

Write "Present" on the VGN line. Denote in parentheses "(high doses)."

Ask: "Does alcohol cause the eyes to be unable to converge?"

- Under the influence of alcohol, Lack of Convergence frequently will be present.

Write "Present" on the LACK CONV line.



Ask: "How does Alcohol affect pupil size?"

- Alcohol does not affect pupil size; therefore, alcohol usually leaves the pupils in the DRE Average ranges.

Write "Normal" on the PUPIL SIZE line.

- Alcohol will cause pupillary reaction to light to be sluggish.

Write "Slow" on the RCTN LIGHT line.

- Indicators of Alcohol Influence Found in Checks of Vital Signs

Ask: "How does alcohol affect pulse rate?"

- Pulse rate will usually be down. However, some subjects have been found to have elevated pulse rates at lower BACs.

Write "Down" on the PULSE line. Refer to the matrix exception for pulse.

Ask: "How does alcohol affect blood pressure."

- Blood pressure response to alcohol will normally be down.

Write "Down" on the Blood Press line.

Ask: "How does alcohol affect body temperature?"

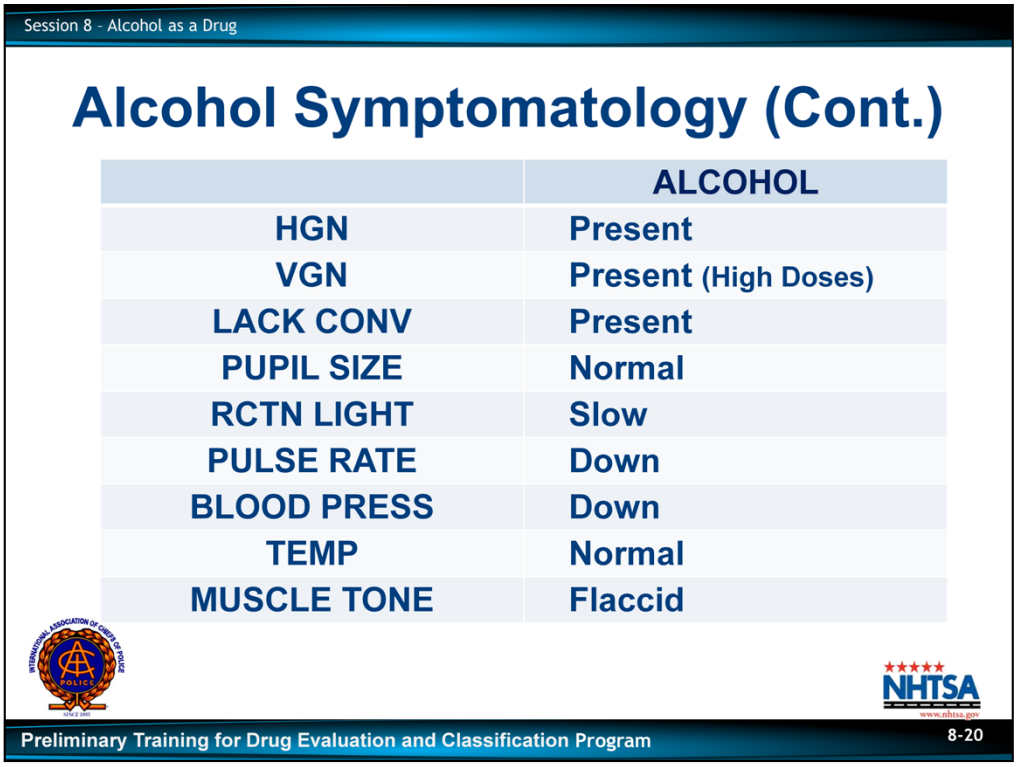
- *Alcohol usually leaves body temperature near the average range.*

Write "Normal" on the TEMP line.

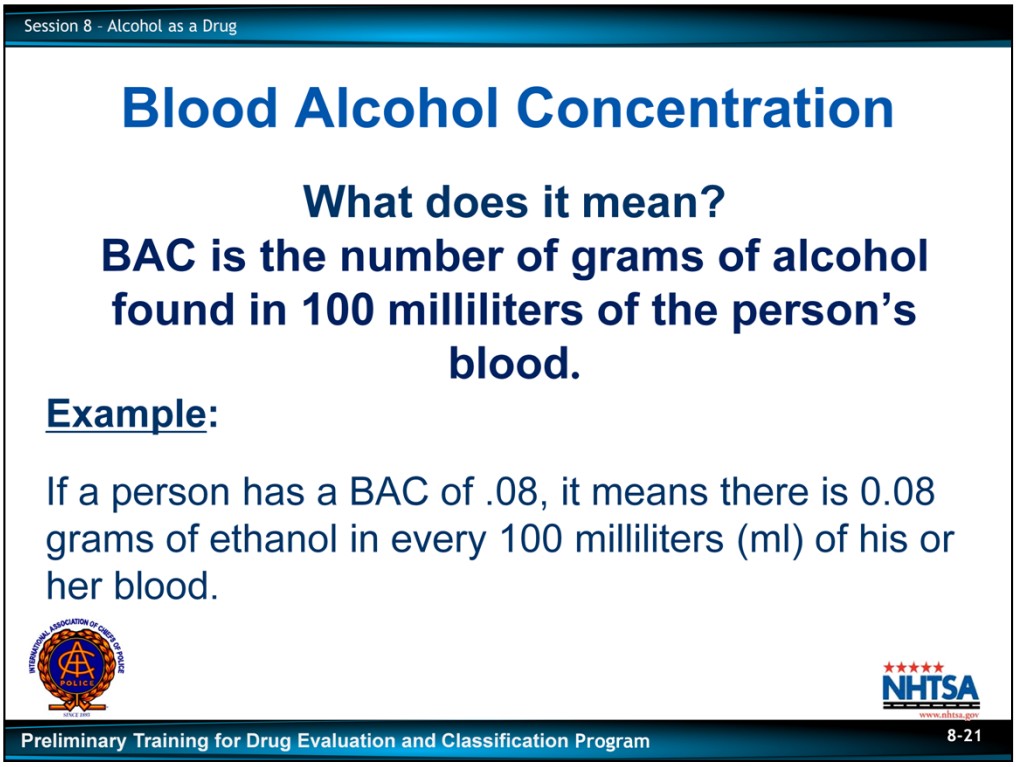
Ask: "How does alcohol affect muscle tone?"

- Alcohol usually causes flaccid muscle tone.

Write "Flaccid" on the MUSCLE TONE line.



***Solicit participants' questions about the signs and symptoms of alcoho*l.**



D. Dose-Response Relationships

Reveal only the question at the top.

What does "Blood Alcohol Concentration" mean?

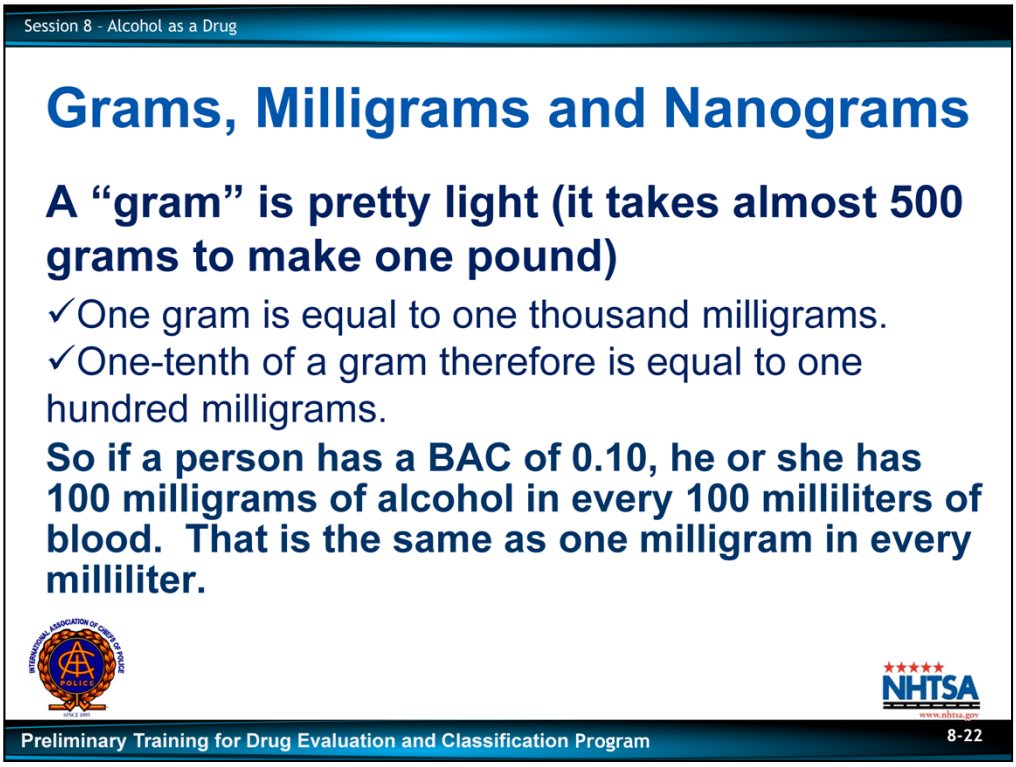
Solicit participants' responses.

Click to reveal the bottom of the slide.

BAC is the number of grams of alcohol found in 100 milliliters of the person's blood.

Example:

If a person has a BAC of .08, it means there is 0.08 grams of ethanol in every 100 milliliters (ml) of his or her blood.

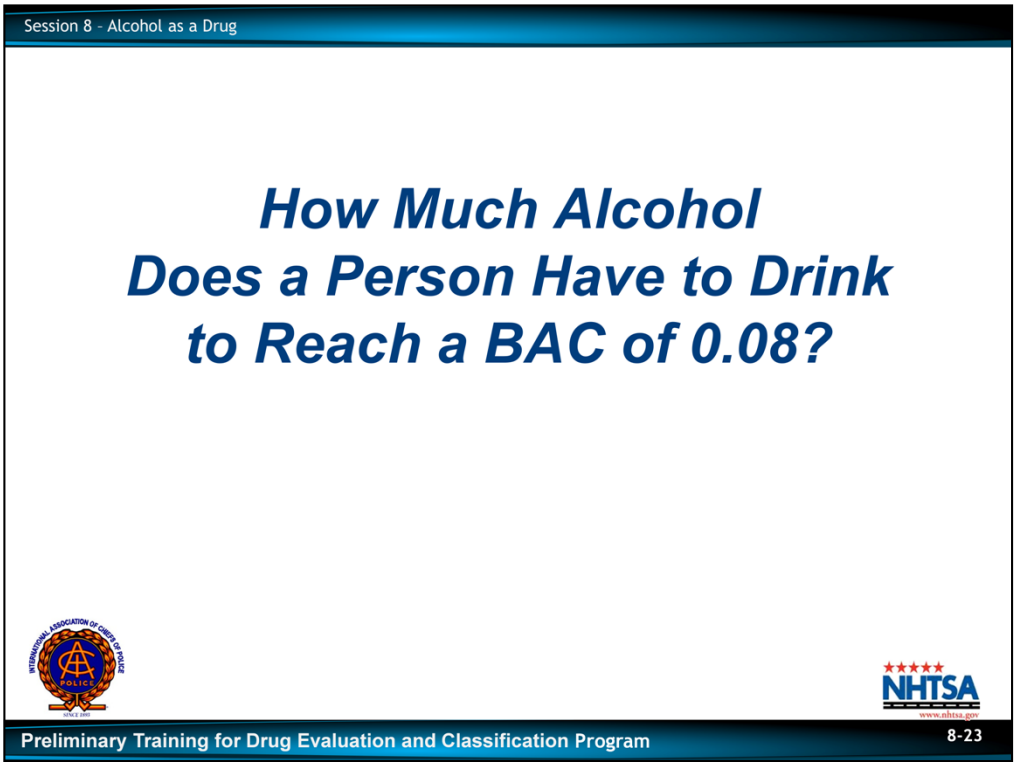


- Blood alcohol concentration means the number of grams of pure ethanol that are found in every 100 milliliters of a person's blood.
- A gram is a measure of weight; it takes almost 500 grams to make a pound.

Instructor, for your information: It actually takes 454 grams to make a pound. A milliliter is a measure of volume. It takes about 500 milliliters to make a pint. Example: A 12-ounce can of beer has about 350 milliliters.

- The so-called "illegal limit" of BAC is 0.08 in all states.
- In 2005, all 50 states had adopted 0.08 BAC.
- If a person has a BAC of 0.08, it means there is 0.08 grams (g) of ethanol in every 100 milliliters (ml) of his/her blood.

BAC results are reported in a variety of units. Two common variations are milligrams/milliliters and percent. There are 1000 milligrams (mg) in one gram; therefore, 0.08 grams equals 80 milligrams (mg) and a BAC of 0.08 would be reported as 80 mg of ethanol/100ml of blood. Percent means parts of 100.



Ask the class this question: **How much alcohol does a person have to drink to reach a BAC of 0.08?**

- Take an average male weighing 175 pounds and in reasonably good physical shape.
- Assume he does his drinking on an empty stomach.
- He would have to gulp down about 4 to 5 cans of beer, or 4 to 5 glasses of wine, or five shots of whiskey in a fairly short period of time to reach 0.08 BAC.
- In terms of pure ethanol, that would amount to just about two and one-half fluid ounces, or about two shot glasses.

Display two standard-sized shot glasses filled with water.

- If these two shot glasses were filled with pure ethanol, we would have just enough of the drug to bring an average man to a BAC of approximately 0.10.

Hold up the two shot glasses while posing the next question.

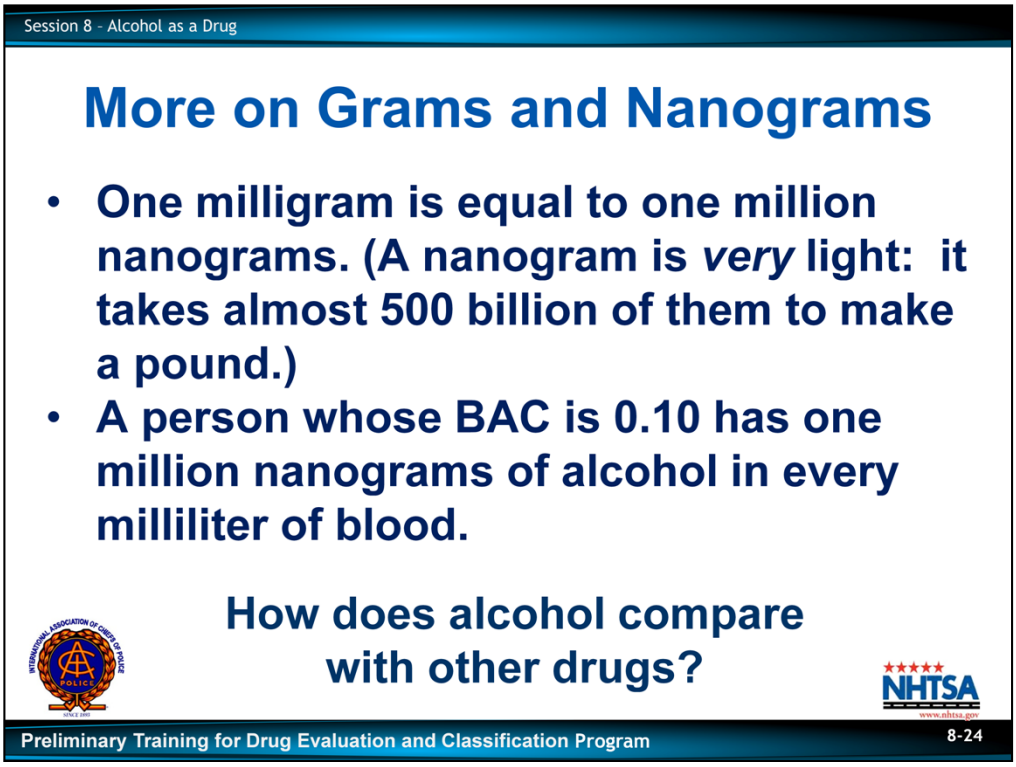
So answer this: Does it take a lot of ethanol or only a little to impair a person?

Solicit participants' responses to the question.

- In one respect, it certainly doesn't take much ethanol to impair; just two full shot glasses will more than do the trick for a full-sized man.

Hold up the glasses again.

- BUT COMPARED TO OTHER DRUGS, it takes an enormous quantity of ethanol to cause impairment.
- In order to compare ethanol to other drugs, we have to review some more units of weight.

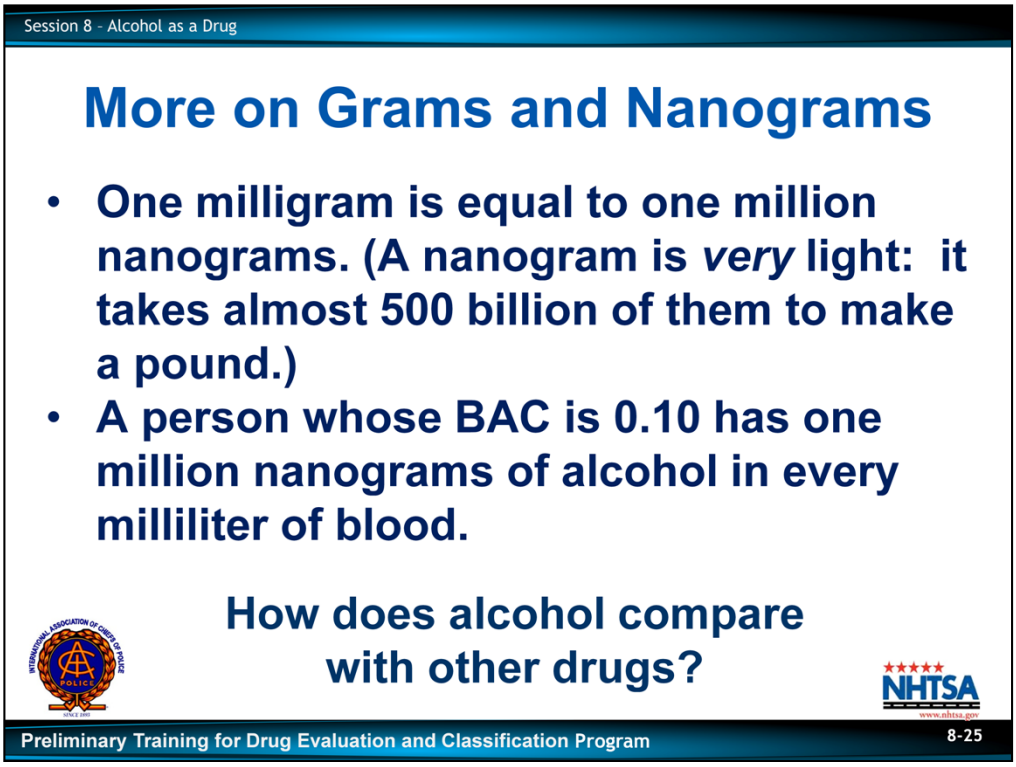


- We're already familiar with the gram. It weighs only about one five-hundredth of a pound.
- The milligram is much lighter still and it takes about one thousand milligrams to make a gram.

Instructor, for your information: The prefix "milli" derives from the Latin word mille, meaning one thousand.

That means it takes nearly five hundred thousand milligrams to make a pound.

- If one gram is equal to one thousand milligrams, then one tenth of a gram is equal to one hundred milligrams.
- Now reveal the remainder of visual.
- Clarification: 100 is one-tenth of 1,000.
- So a person with a BAC of 0.10 has 100 milligrams of ethanol in every 100 milliliters of his or her blood.
- That is exactly the same as saying there is one milligram of ethanol in every one milliliter of blood.



Here is a new term: the nanogram.

Now reveal the parenthetic sentence on the visual.

It takes a million nanograms to make a milligram.

Now reveal the second "bullet" on the visual.

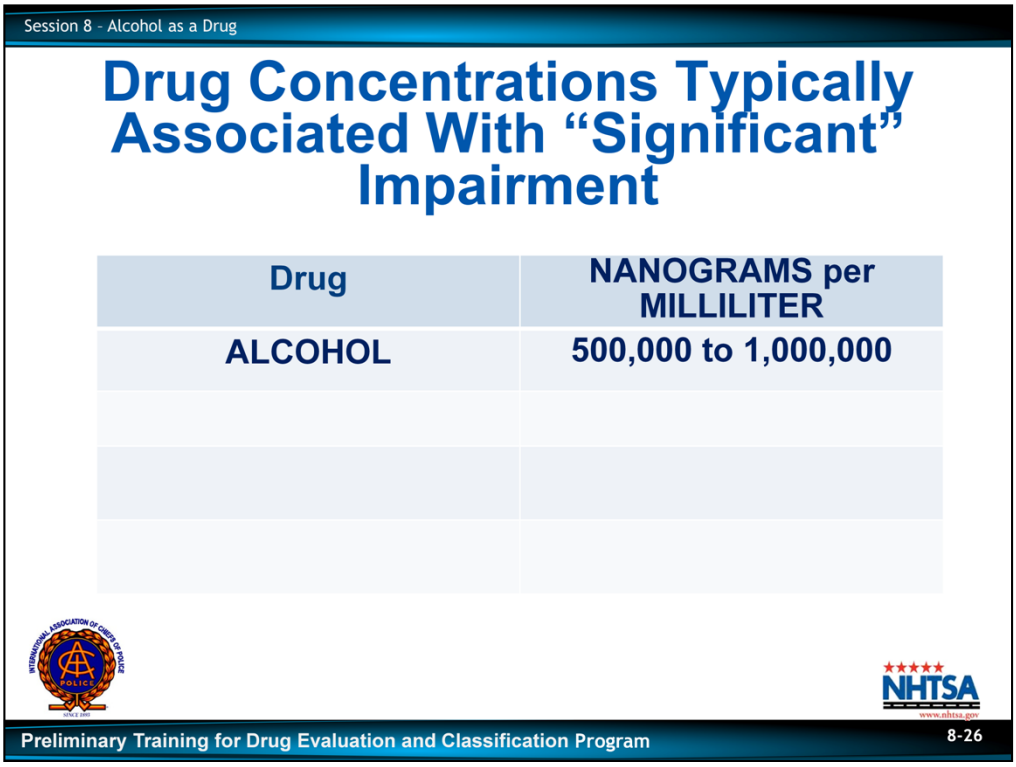
That means it takes one billion nanograms to make a gram.

And that means that it takes almost five hundred billion nanograms to make a single pound.

So if a person's BAC is 0.10, he or she has one million nanograms of pure ethanol in every milliliter of blood.

What kinds of concentrations of other drugs does it take to produce impairment?

Don't solicit responses to this question; it is purely rhetorical.



- IT IS MOST IMPORTANT to understand that we cannot state exact correspondences between alcohol concentrations and other drug concentrations.

Reveal only the "alcohol" segment of the visual.

- For example, we can say that someone with a blood alcohol concentration between 0.05 and 0.10 will exhibit significant impairment because there is a large body of scientific research that backs up that statement.

Point to the alcohol line on the visual.

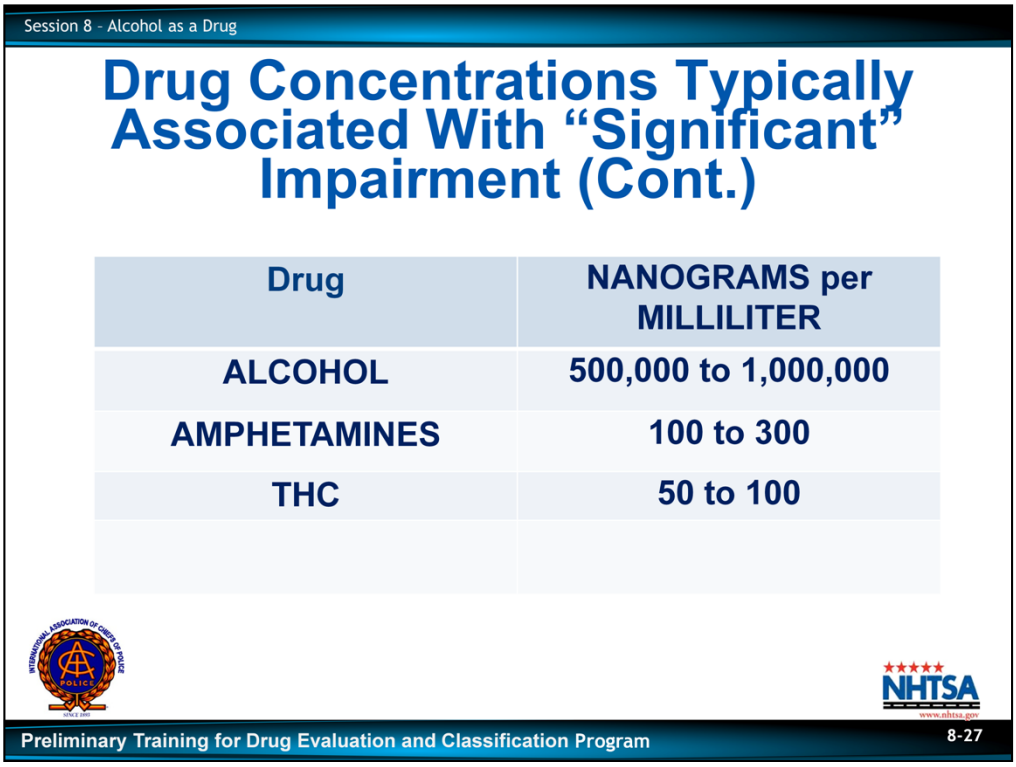
- So we can say that research shows that significant impairment will be found with alcohol at concentrations of 500,000 to one million nanograms per milliliter.

Point to the alcohol line on the visual.

- But we can't say exactly how much cocaine, THC, morphine, or any other drug would take to produce exactly the same impairment that we would find at 0.10 BAC.
- In part, this is because we do not have extensive scientific research for most other drugs.
- But also it is because many other drugs do not impair in the same way that alcohol impairs.

Example: Unlike alcohol, some other drugs (such as THC and PCP) readily deposit in fatty tissue and may continue to cause impairment even after they have cleared from the blood.

- Nevertheless, based on the available research, it is possible to make some general statements about drug concentrations that can safely be said to induce significant driving impairment.



Reveal the Amphetamine line on the visual.

- First example: Amphetamines.

***Hold up the two shot glasses again*.**

- Researchers agree that if we had two shot glasses full of pure amphetamines, we'd have enough to impair as many as ten thousand people.

Ask participants: What if these shot glasses were full of pure THC, the active ingredient in Cannabis?

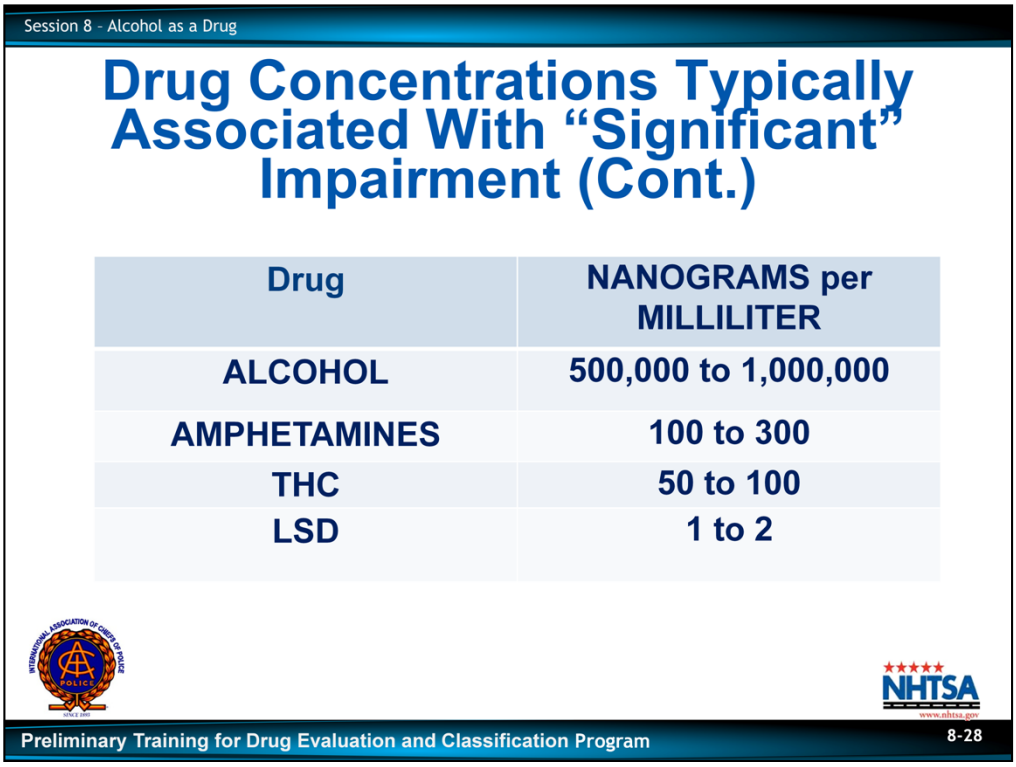
- Second example: Cannabis.

Reveal the Cannabis (THC) line on the visual.

- Available evidence suggests that if these two little glasses were full of pure THC, we'd have enough drug to impair as many as twenty thousand people.

ONCE AGAIN, hold up the two shot glasses.

- Ask participants: But what if these glasses were full of pure LSD?



Reveal the LSD line on the visual.

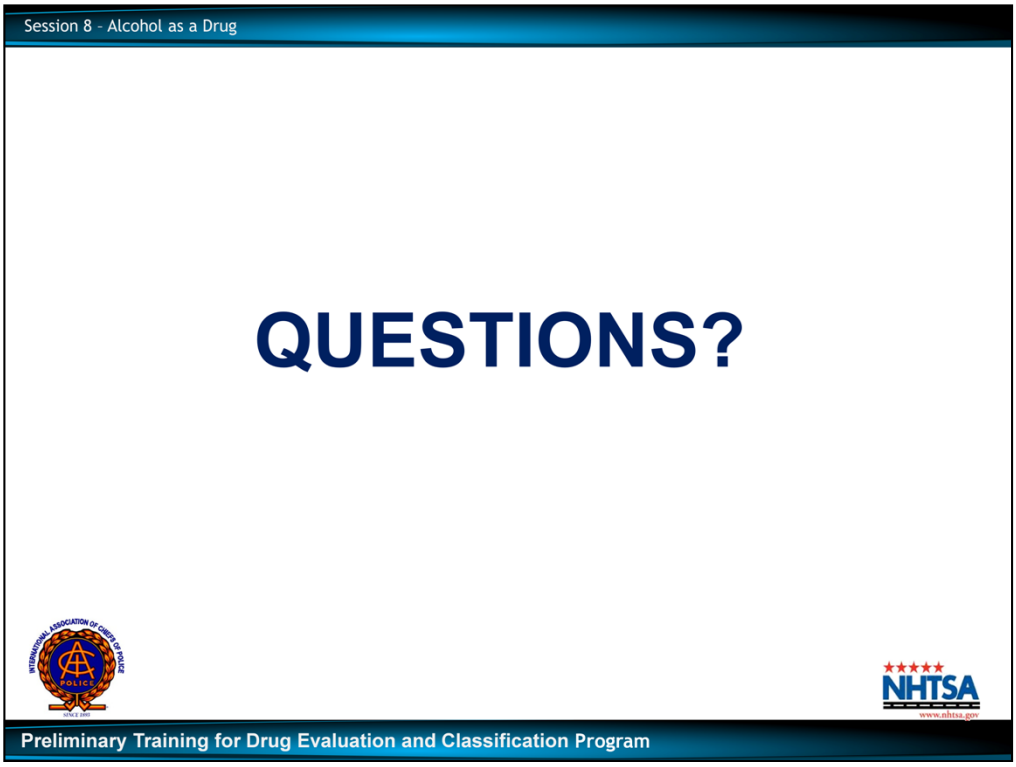
- Many researchers believe that significant impairment results from very low LSD concentrations.
- If these two glasses contained pure LSD, we could impair up to one million people.
- What does all this mean? This is a rhetorical question.
- First, it means that compared to alcohol, most other drugs are very powerful: a little goes a long way.

Example: A person who is "only" carrying one fluid ounce of LSD (hold up one shot glass) would be capable of impairing "only" the entire population of, say, Wyoming.

- Second, it means that laboratories may be stretched to the limits of their technologic capabilities when we send them samples and request certain drug analyses.
- All analytic techniques have detection thresholds, i.e., minimum concentrations of drugs that must be present if a scientific confirmation of the presence of the drug is to be obtained.
- If the concentration of the drug is less than the detection threshold, the laboratory simply will not be able to confirm that the drug is present.
- The problem is that some people will be significantly impaired at drug concentrations that are below the lab's detection threshold.

- What this means is that a DRE sometimes examines a subject, concludes correctly that he or she is under the influence of a certain drug category, perhaps even obtains an admission from the subject that he or she has taken a drug, gets a toxicological sample and sends it to the lab, only to have the lab report that **"no drugs were found."**
- When this happens to you – and it will – it is important that you don't let yourself become discouraged.
- As a DRE, all you are expected to do is the best that you can do given the tools available.
- You will never become perfect in your opinion of drug impairment.
- There will be times when you will "miss" the fact that a subject is impaired.
- And there may be times when you will conclude that a subject is under the influence of a drug and a drug will not be detected.
- We rely on the laboratory to corroborate our opinions.
- However, the laboratory is not perfect and the toxicologists won't always be able to corroborate your opinion, even though your opinion is accurate.

Solicit participants' comments and questions about dose-response relationships involving alcohol and other drugs.



E. Questions for Review

Direct participants to turn to the review questions at the end of Section 8 of their Participant Manual.

Pose each question to the class and solicit responses. Make sure all participants understand the correct answers.

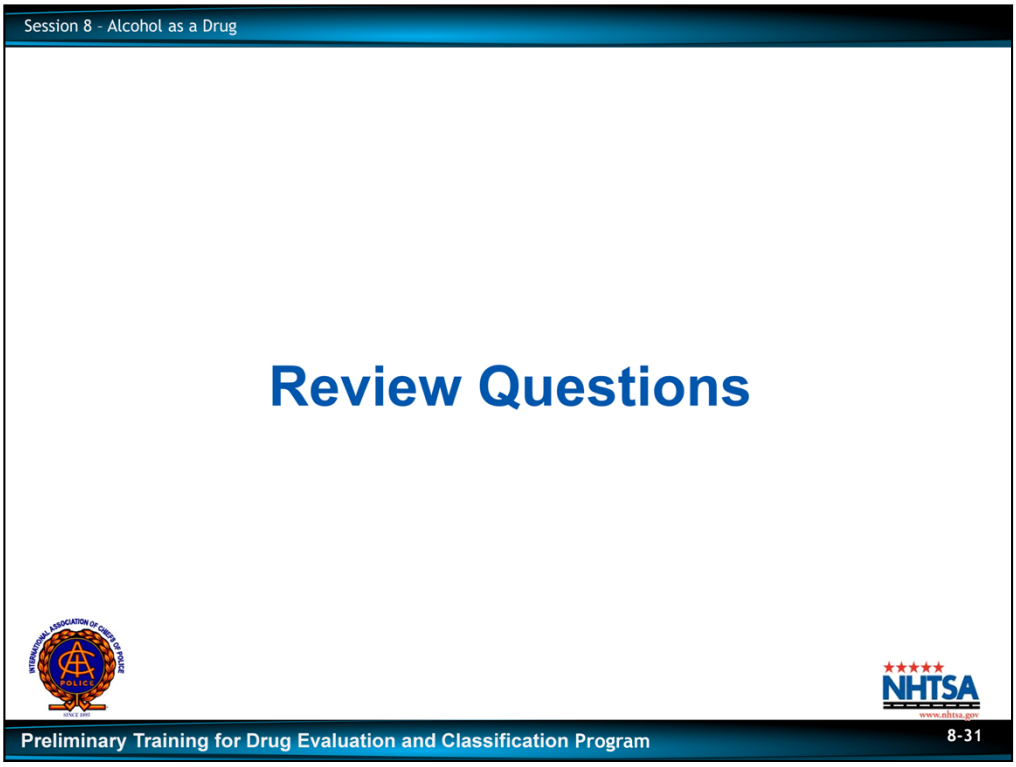
REVIEW QUESTIONS

1. Name three different chemicals that are alcohols. Which of these is beverage alcohol, intended for human consumption? What is the chemical symbol for beverage alcohol?

A: ***Methyl, Ethyl and Isopropyl (or Methanol, Ethanol and Isopropanol or Wood Alcohol, Beverage Alcohol and Rubbing Alcohol). Ethanol is the beverage intended for human consumption. The four letter chemical symbol for alcohol is ETOH.***

2. What is the name of the chemical process by which beverage alcohol is produced naturally? What is the name of the process used to produce high-concentration beverage alcohol?

A: ***1. Fermentation 2. Distillation***



3. Multiple Choice: “Blood alcohol concentration is the number of _____ of alcohol in every 100 millimeters of blood.”

A: “A” – grams

4 . True or False: Pound-for-pound, the average woman contains more water than does the average man.

A: *<u>False</u>. The average woman actually has a good deal less water, pound-for-pound, than the average man. She has about 55% water, he is about 68% water.*

5. What do we mean by the “proof” of an alcoholic beverage?

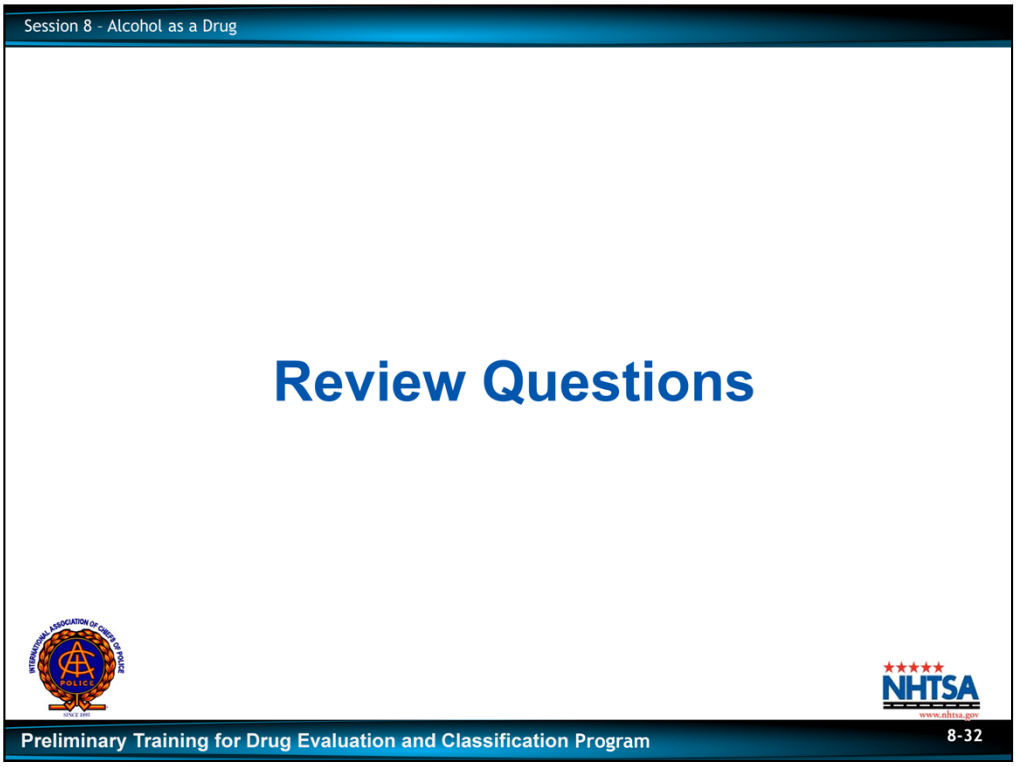
A: *“Proof” means twice the ethanol percentage of the beverage. For example, 80 proof vodka is 40% ethanol.*

6. Every chemical that is an “alcohol” contains what three elements?

A: *carbon, hydrogen, and oxygen*

7.True or False: Most of the alcohol that a person drinks is absorbed into the blood via the small intestine.

A: *<u>true</u>.*



8. What is the name of the muscle that controls the passage from the stomach to the lower gastrointestinal tract?

A: the pyloris, or pyloric valve.

9. True or False: Alcohol can pass directly through the stomach walls and enter the bloodstream.

A: True

10. Multiple Choice: Suppose a man and a woman who both weigh 160 pounds arrived at a party and started to drink at the same time. And suppose that, two hours later, they both have a BAC of 0.10. Chances are….

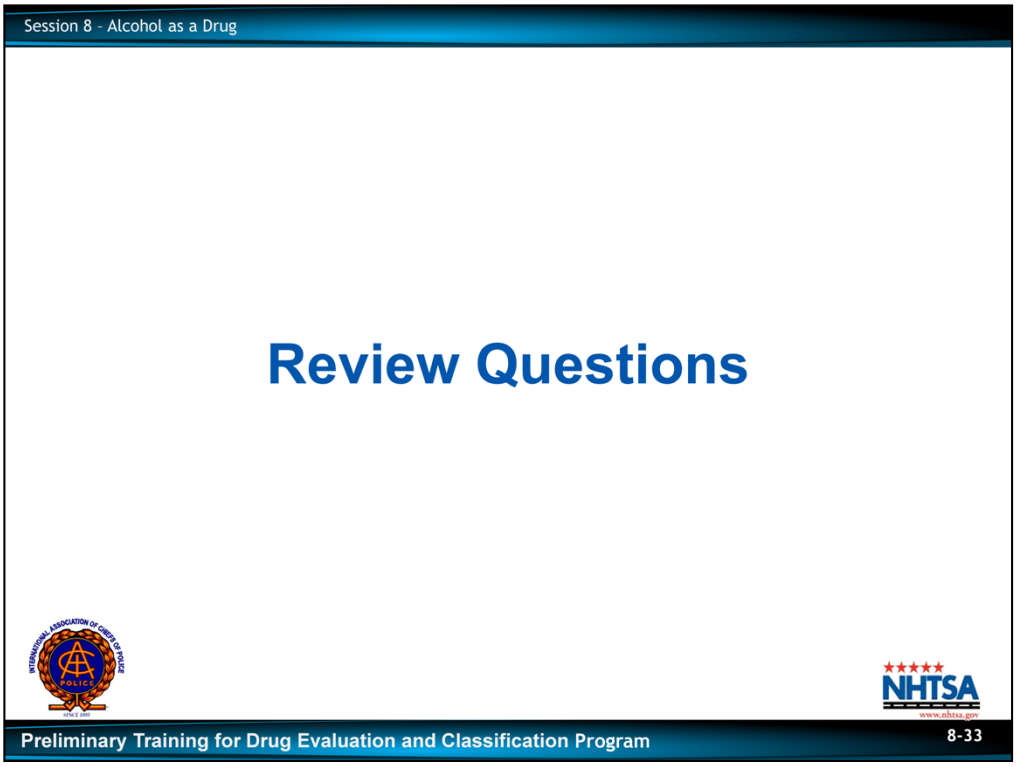
A: "A" – more to drink

11. In which organ of the body does most of the metabolism of the alcohol take place?

A: The liver is where most metabolism takes place.

12. What is the name of the enzyme that aids the metabolism of alcohol?

A: Alcohol dehydrogenase is the enzyme that serves as a catalyst for alcohol's metabolism in the liver.



13. Once a person reaches his or her peak BAC, it will drop at a rate of about _____ per hour.

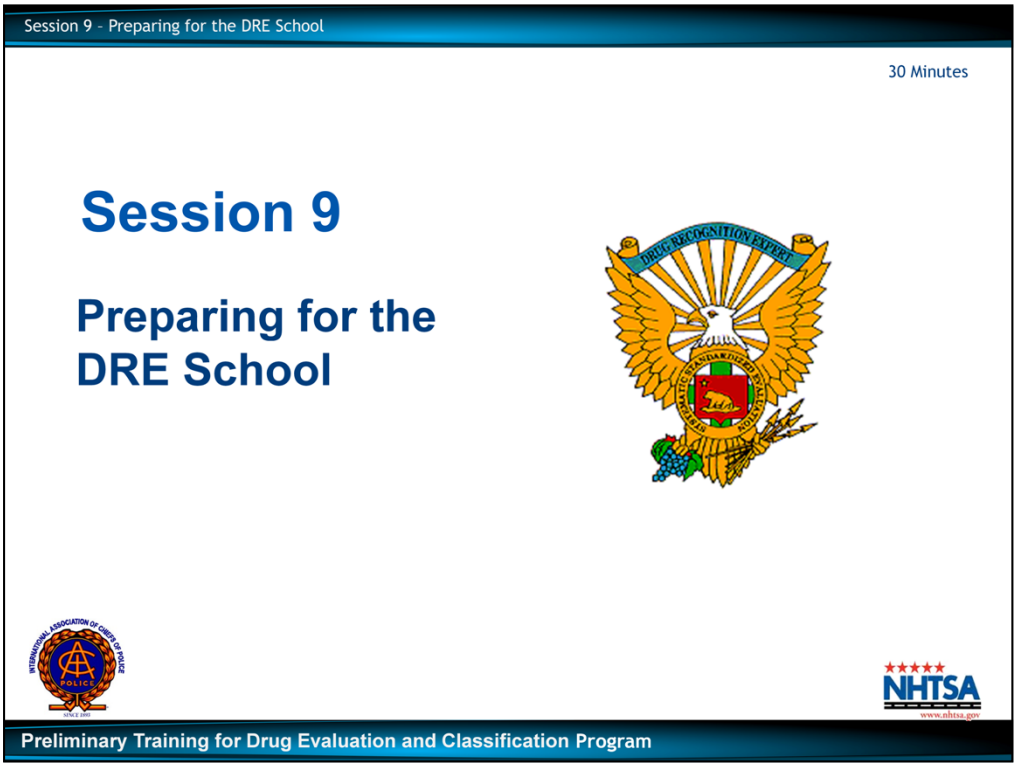
A: ***"B" – 0.015 percent. (But remember, this is an average value, with wide variations among individuals).***

14. Multiple Choice: If a person has a blood alcohol concentration of 0.10, then there are _____ nanograms of alcohol in every milliliter of his or her blood.

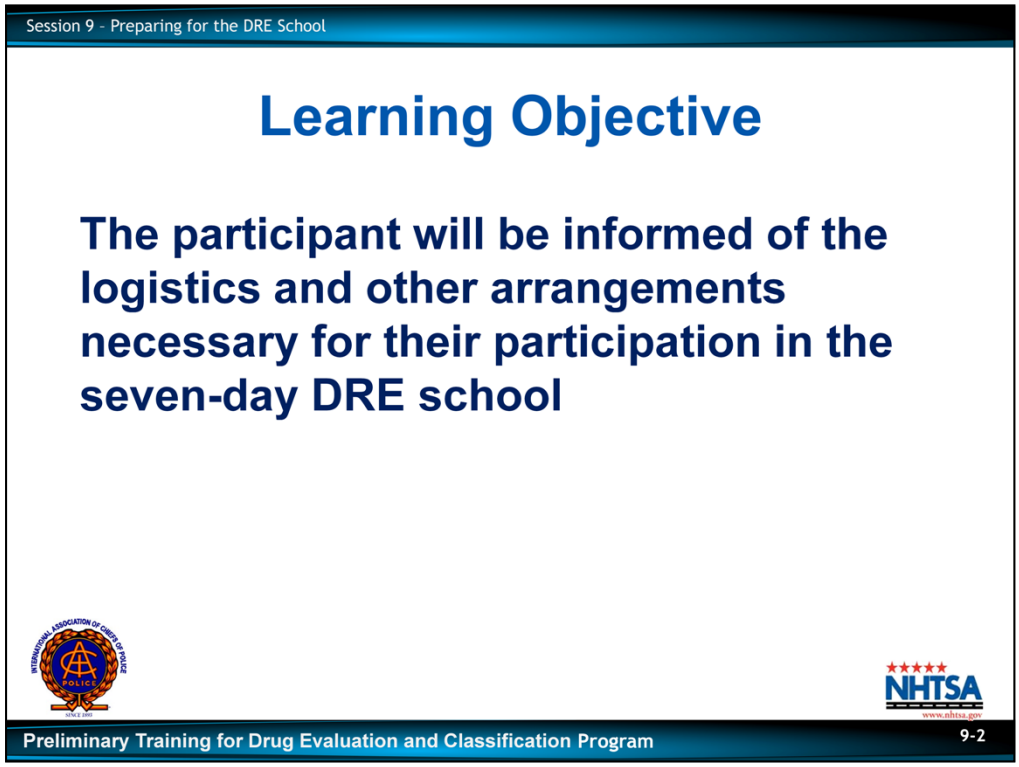
A:"A" – one million

15. True or False: It takes about thirty minutes for the average 175 pound man to "burn off" the alcohol in one 12-ounce can of beer.

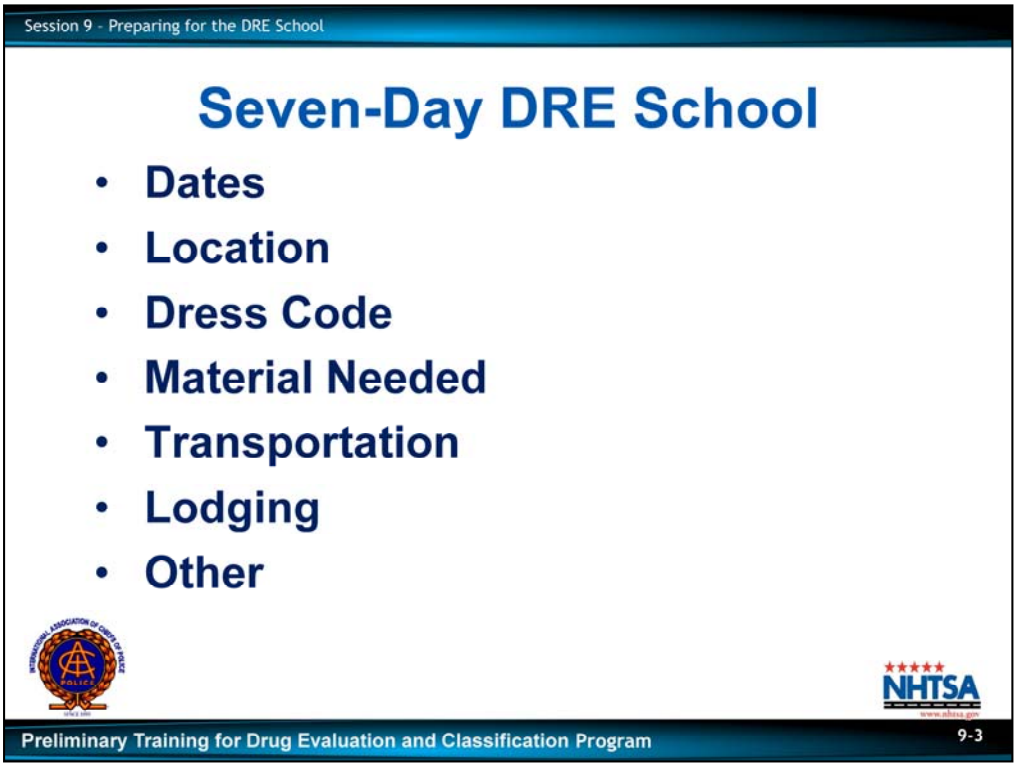
A: The statement is <u>false</u>. The average 175 pound man will need more like ninety minutes to metabolize the alcohol.



PREPARING FOR THE DRE SCHOOL



Upon successfully completing this session the student will be informed of the logistics and other arrangements necessary for their participation in the seven day DRE School.



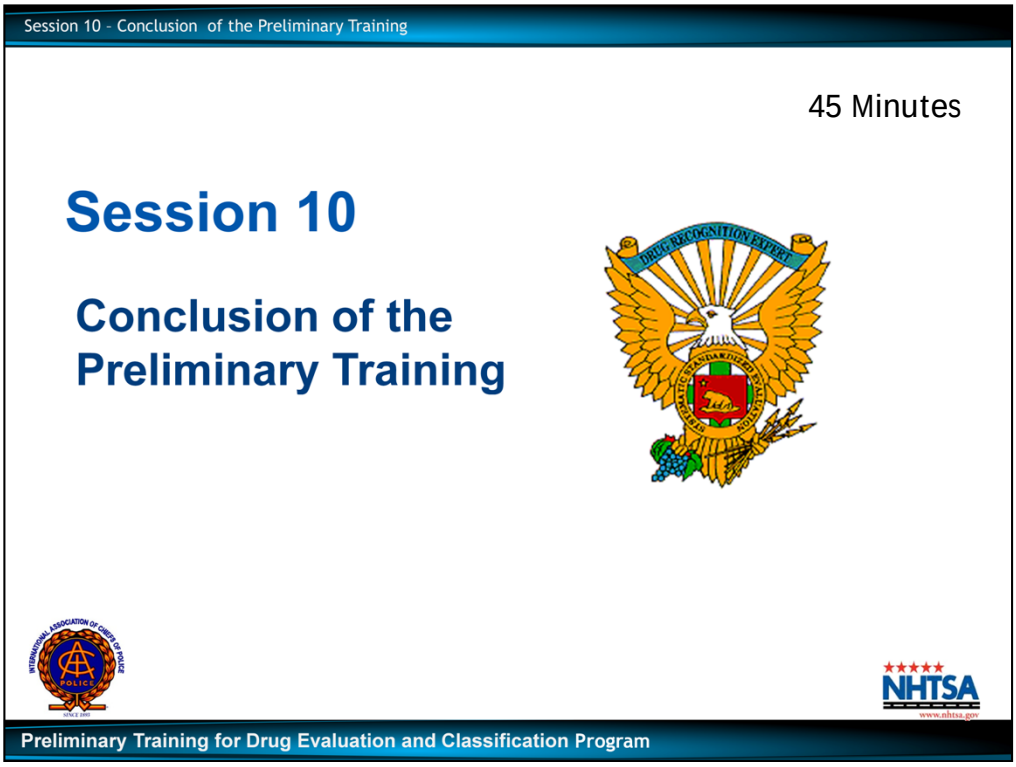
A. Session 9 Guide

Review the following points with the participants:

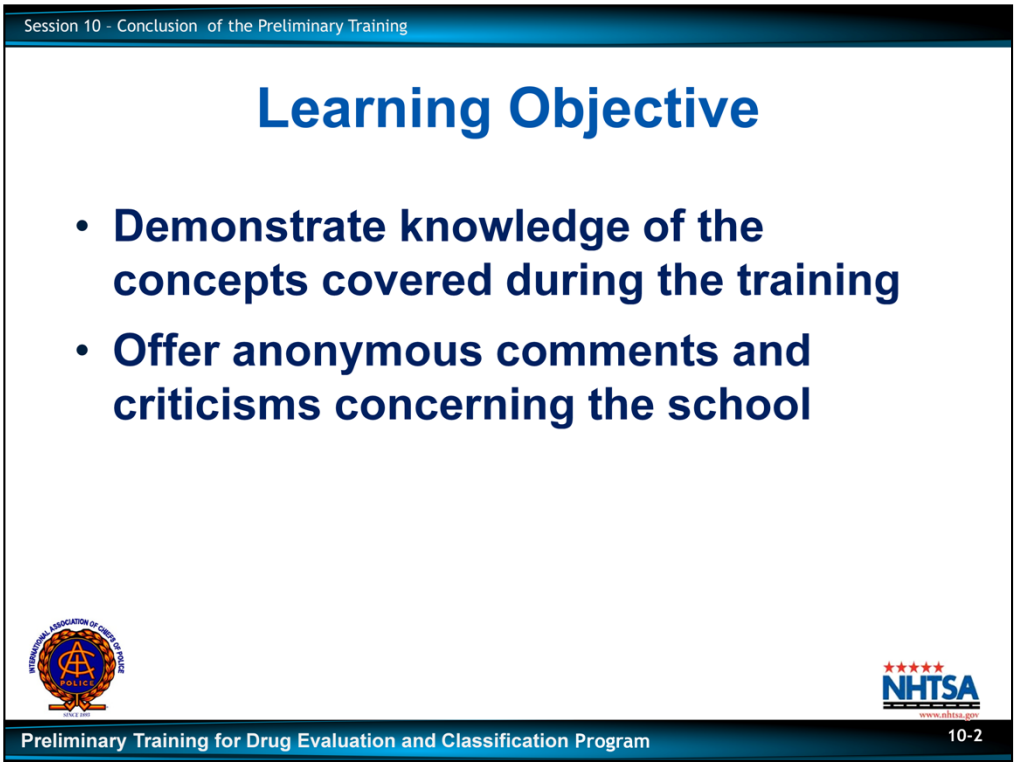
- Dates of the seven-day school
- Location of the school
- Dress code
- Materials that the participants should bring to the school
- Transportation arrangement (if applicable)
- Lodging arrangements (if applicable)
- Recreational facilities and opportunities (if appropriate)

Tell the participants to open their manuals to Session 9. Point out that some very important suggestions of "things to do prior to the DRE School" are given there. Emphasize that the participants will be expected to be fully prepared when they come to the school. This is also a good time for the participants to begin preparation of their professional Curriculum Vitae (C.V.). A worksheet for the C.V. is provided and is located in Session 9 of the DRE student manual.

QUESTIONS?



CONCLUSION OF THE PRELIMINARY TRAINING

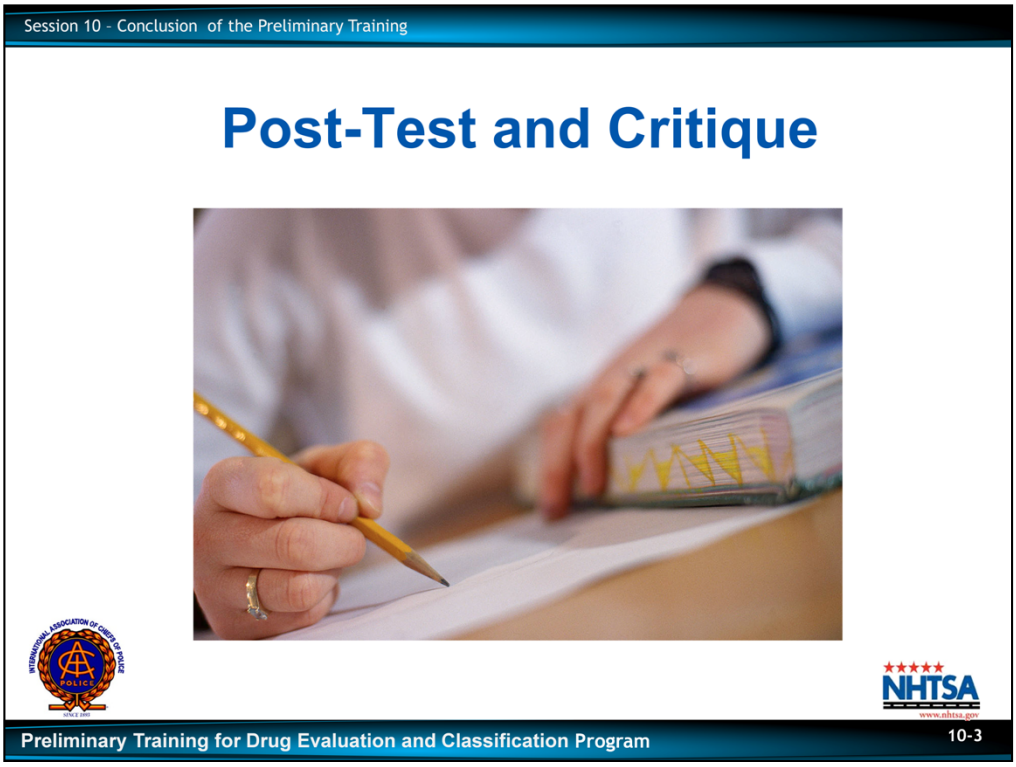


Briefly review the objectives, content and activities of this session.

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

- Demonstrated his or her knowledge of the concepts covered during the DRE Pre-School.
- Offer anonymous comments and criticisms concerning the school

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Post-Test and Critique	Written Examinations
B. Certificates and Dismissal	
C. Session Wrap-up	



A. Post Test and Critique

Post Test

- Hand out copies of the post test.
- Allow about 15 minutes for students to complete the test.

Critique

- Hand out copies of the Student's Critique Form.
- Allow about 15 minutes for students to complete the critique.

Review of the Post Test

- Go over the post test questions. Limit this review to 10 minutes. Instruct the students to retain the Pre-School post test as a study guide for the upcoming DRE School.

Collect the completed critiques.

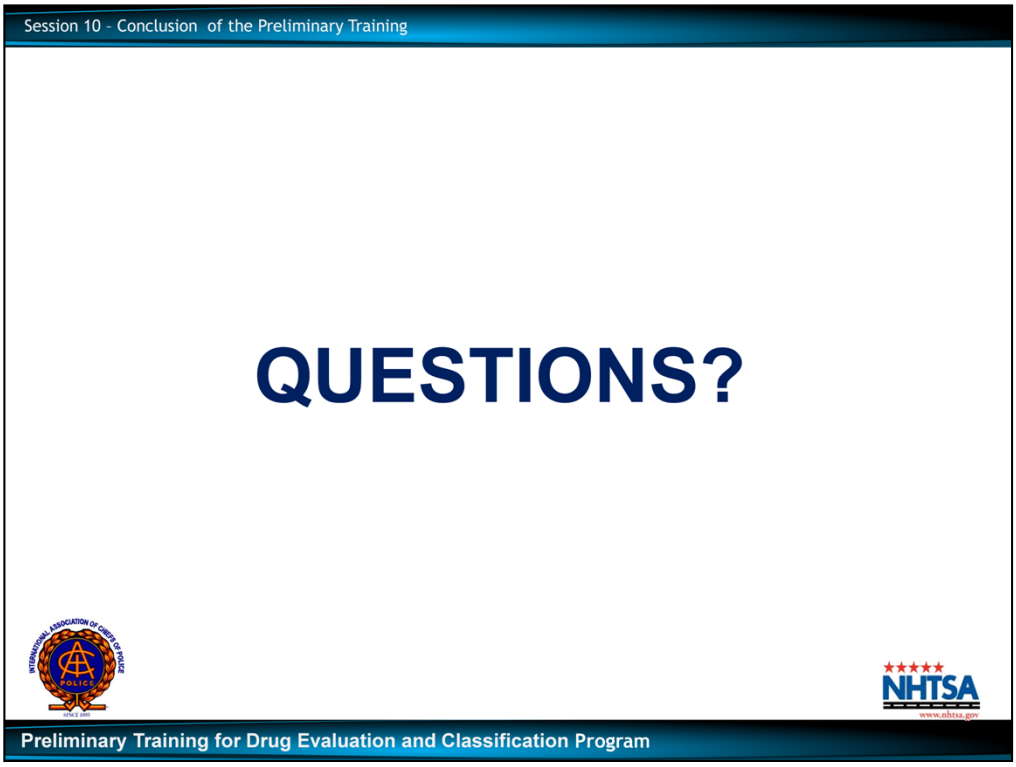
B. Certificates and Dismissal

Hand out certificates of course completion.

Hand back the students' Certification Progress Logs

- making sure that an instructor has signed the Pre-School line on each log.
- Remind the students that they must bring the progress logs with them to the DRE School.

Thank the students for their participation.



C. Session Wrap-Up

Solicit participants' comments concerning the Conclusion of the Preliminary Training session.

Course Location_____ Date_____

Preliminary Training for Drug Evaluation and Classification

Student's Critique Form

A. Course Objectives

Please indicate whether you feel that you personally achieved the following course objectives.

	Yes	No	Not Sure
Can you define the term "drug" and name the seven drug categories?			
Can you identify the twelve major components of the drug recognition process?			
Can you administer and interpret the psychophysical tests used in a drug evaluation?			
Can you conduct the eye examinations used in the evaluations?			
Can you check the vital signs used in the evaluation?			
Can you list the major signs and symptoms associated with each drug category?			
Can you describe the history and physiology of alcohol as a drug?			
	Session/A		

B. Course Activities

Please rate how helpful each workshop session was for you personally. Also, please rate the quality of instruction (subject knowledge, instructional techniques and learning activities). Use a scale from 1 to 5 where: 5=Excellent, 4=Very Good, 3=Good, 2=Fair, 1=Poor.

	Yes	No	Not Sure
Can you define the term "drug" and name the seven drug categories?			
Can you identify the twelve major components of the drug recognition process?			
Can you administer and interpret the psychophysical tests used in a drug evaluation?			
Can you conduct the eye examinations used in the evaluations?			
Can you check the vital signs used in the evaluation?			
Can you list the major signs and symptoms associated with each drug category?			

C. Course Design: Please indicate your own personal feeling about the accuracy of each statement.

	Yes	No	Not Sure
Can you define the term “drug” and name the seven drug categories?			
Can you identify the twelve major components of the drug recognition process?			
Can you administer and interpret the psychophysical tests used in a drug evaluation?			
Can you conduct the eye examinations used in the evaluations?			
Can you check the vital signs used in the evaluation?			
Can you list the major signs and symptoms associated with each drug category?			
Can you describe the history and physiology of alcohol as a drug?			

	Session/Activity	Quality
Overview of Drug Evaluation and Classification Procedures		
The Psychophysical Tests		
The Eye Examinations		
Alcohol Workshop		
Examination of Vital Signs		
Overview of Signs and Symptoms		
Alcohol as a Drug		
Preparing for the DRE School		

	Agree	Disagree	Not Sure
1. I wish we had more practice with drinking volunteers.			
2. There was too much “bull throwing” in this course.			
3. I now have a much better idea as to what the drug recognition process is all about.			
4. The course was at least one-half day too long.			
5. I got a great deal of practical use of this information			

D. Suggestions for Deletion and Additions If you absolutely had to cut four hours out of this course, what would you delete or shorten?

_____

_____

If you could add four hours to this course, how would you spend the extra time?

_____

_____

_____

E. Ratings of the Course and the Instructors On a scale from 1 (=very poor) to 5 (=excellent), please give your opinion of the course as a whole.

The course as a whole:_____ On a scale from 1 (=very poor) to 5 (=excellent), please give your opinion of each instructor.

	Yes	No	Not Sure
Can you define the term “drug” and name the seven drug categories?			
Can you identify the twelve major components of the drug recognition process?			
Can you administer and interpret the psychophysical tests used in a drug evaluation?			
Can you conduct the eye examinations used in the evaluations?			
Can you check the vital signs used in the evaluation?			
Can you list the major signs and symptoms associated with each drug category?			
Can you describe the history and physiology of alcohol as a drug?			
	Session/A		

F. Final Comments/Suggestions: Please offer any final comments that you wish to make.

_____

_____

_____