Welcome to: DRUG IMPAIRMENT TRAINING for EDUCATION PROFESSIONALS (DITEP)

Day Two
DITEP Main Menu - Day II

- Session VII: Eye Examinations
- Session VIII: Vital Signs
- Session IX: Divided Attention Testing
- Session X: Drug Combinations
- Session XI: Assessments
- Session XII: Conclusion
Day Two - Objectives

Upon successful completion of this training, participants will be better able to:

1. Define nystagmus and distinguish between the different types.

2. Demonstrate the administration of the horizontal gaze nystagmus (HGN) test, vertical nystagmus test, and lack of convergence tests.
Day Two – Objectives (cont.)

Upon successful completion of this training, participants will be better able to:

3. Demonstrate the procedures used to estimate pupil size.

4. Explain the relationship between the eye examinations and the drug categories.
Day Two – Objectives (cont.)

Upon successful completion of this training, participants will be better able to:

5. List the “normal ranges” for pulse rate, blood pressure, and body temperature.

6. Explain the relationship between the vital sign examinations and the drug categories.

7. Demonstrate the administration and evaluation of the psychophysical tests.
Day Two – Objectives (cont.)

Upon successful completion of this training, participants will be better able to:

8. Distinguish between the effects of the four types of drug combinations.

9. Identify and explain the components of the DITEP assessment form.
Eye Examinations Session VII

DITEP – Drug Impairment Training for Education Professionals
Horizontal Gaze Nystagmus

The involuntary jerking of the eyes occurring as the eyes gaze towards the side

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Categories of Nystagmus

- Vestibular (Inner Ear Related) Nystagmus
  - Rotational - while being spun in a circle
  - Post-Rotational - after being spun
  - Caloric - temperature differences in the ears
  - Positional Alcohol Nystagmus - unequal concentrations in the ear and blood

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Categories of Nystagmus (cont.)

- Neural Nystagmus
  - Optokinetic – caused by fast moving objects
  - Physiological – natural nystagmus

- Gaze Nystagmus
  - Horizontal Gaze Nystagmus
  - Vertical Nystagmus
  - Resting Nystagmus
Nystagmus may be the result of certain pathological disorders. These include brain tumors and other brain damage or some diseases of the inner ear.
Administrative Procedures

- Glasses / Contacts
- Verbal Instructions
  - Stand straight
  - Feet together
  - Follow with your eyes only, do not move your head
Administrative Procedures (Cont.)

- Position the stimulus 12” - 15” slightly above eye level

Preliminary Tests:

- Equal tracking
- Equal pupil size
- Resting Nystagmus

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Clues of Horizontal Gaze Nystagmus

1. Lack of Smooth Pursuit

- Move the stimulus to the person’s left
- It should take approximately 2 seconds to bring it to the side
- Check the other eye at the same speed
- Repeat

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Lack of Smooth Pursuit

BAC of 0.11 - Click for BAC 0.00

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Clues of Horizontal Gaze Nystagmus

2. Distinct and Sustained Nystagmus at Maximum Deviation

- Move the stimulus to the person’s left
- Hold the stimulus at the corner of the eye (no white showing) for at least 4 seconds
- Check the other eye and hold for same length
- Repeat

Nose Left Side

At least 4 Seconds

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Distinct and Sustained Nystagmus at Maximum Deviation

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Clues of Horizontal Gaze Nystagmus

3. **Onset of Nystagmus Prior to 45 Degrees**

- Slowly (approximately 4 seconds) move the stimulus to the person’s left.
- If nystagmus is observed, hold the stimulus to verify it continues.
- Check the other eye and hold for the same length.
- Repeat.

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Onset of Nystagmus Prior to 45 Degrees

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Clues of H.G.N.

1. Lack of smooth pursuit
2. Distinct, sustained nystagmus at maximum deviation
3. Onset of nystagmus prior to 45°

Each clue assessed for each eye, for a total of 6 possible clues
H.G.N. Clues for Impairment

4 out of 6 clues is consistent with impairment by:

- CNS Depressants
- Dissociative Anesthetics
- Inhalants
QUESTIONS

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Vertical Nystagmus

- Move the stimulus vertically
- Raise the stimulus until the individual’s eyes are elevated as far as possible and hold for at least four seconds
- Repeat

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Vertical Nystagmus

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QUESTIONS

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Lack of Convergence:
The inability to cross the eyes

- Procedures:
  - Explain the testing procedure
  - Glasses should be worn if needed for near vision
  - Position a stimulus 12” - 15” in front of the face
  - Move the stimulus in two circles in front of the individual’s face
  - Move the stimulus towards the nose. Stopping approximately 2” from the bridge of the nose and hold for approximately one second
  - Closely observe and record the eyes’ movement
Normal convergence is a distance approximately two inches (2") from the bridge of the nose

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
Lack of Convergence
QUESTIONS

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Pupil Size Estimation

- Room Light
- Near Total Darkness
- Direct Light

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Normal Range of Pupil Sizes

- Room Light: 2.5 – 5.0 mm
- Near Total Darkness: 5.0 – 8.5 mm
- Direct light: 2.0 – 4.5 mm
Pupil Reactions to Light

- Reaction to light
  - Normal (within 1 second)
  - Slow (more than 1 second)

- 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
Rebound Dilation

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### Relationships to the Categories

<table>
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<tr>
<th></th>
<th>CNS Depressant</th>
<th>CNS Stimulant</th>
<th>Hallucinogen</th>
<th>Dissociative Anesthetic</th>
<th>Narcotic Analgesic</th>
<th>Inhalant</th>
<th>Cannabis</th>
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<td>Normal*</td>
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<td>Dilated</td>
<td>Normal</td>
<td>Constricted</td>
<td>Normal *</td>
<td>Dilated *</td>
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<td>Slow</td>
<td>Slow</td>
<td>Normal *</td>
<td>Normal</td>
<td>Little or None Visible</td>
<td>Slow</td>
<td>Normal</td>
</tr>
</tbody>
</table>

- High dose for that particular person.
- Pupil size may be dilated (see below)**
- Pupil size may be dilated for some inhalants
- Pupil size may be normal

- Certain psychedelic amphetamines may cause slowing

**Soma, Quaaludes, and some Anti-Depressant drugs will cause pupils to dilate**
QUESTIONS

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Lack of Smooth Pursuit

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Distinct and Sustained Nystagmus at Maximum Deviation

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Supplemental
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Onset of Nystagmus Prior to 45 Degrees

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