

SESSION VIII

CONCEPTS AND PRINCIPLES OF THE  
STANDARDIZED FIELD SOBRIETY TESTS

## SESSION VIII

### CONCEPTS AND PRINCIPLES OF THE STANDARDIZED FIELD SOBRIETY TESTS

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

- o Discuss the development and validity of the Standardized Field Sobriety Tests.
- o Discuss the different types of nystagmus and their effects on the Horizontal Gaze Nystagmus test.
- o Discuss and properly administer the three Standardized Field Sobriety Tests.
- o Discuss and recognize the clues of the three Standardized Field Sobriety Tests.
- o Describe in a clear and convincing fashion and properly record the results of the three Standardized Field Sobriety Tests on a standard note taking guide.
- o Discuss the limiting factors of the three Standardized Field Sobriety Tests.

#### CONTENTS SEGMENTS

#### LEARNING ACTIVITIES

- |   |  |
|---|--|
| A. Overview: Development and Validity                                     | o Instructor-Led Presentation              |
| B. SFST Field Validation Studies  | o Instructor-Led Demonstration             |
| C. Horizontal Gaze Nystagmus  |  |
| D. Vertical Gaze Nystagmus  |  |
| E. Walk-and-Turn  | o Student Practice Session & Demonstration |
| F. Combining the Clues of the Horizontal Gaze Nystagmus and Walk-and-Turn |  |
| G. One-Leg Stand  |  |
| H. Limitations of the Three Tests   |  |
| I. Taking Field Notes on the Standardized Field Sobriety Tests            |  |

## OVERVIEW OF SFST RESEARCH AND DEVELOPMENT

1. For many years law enforcement officers have utilized field sobriety tests to determine the impairment of a person's driving due to alcohol influence. The performance of the person on those field sobriety tests was used by the officer to develop probable cause for arrest and as evidence in court. A wide variety of field sobriety tests existed and there was a need to develop a battery of standardized valid tests.
2. Beginning in late 1975, extensive scientific research studies were sponsored by NHTSA through a contract with the Southern California Research Institute (SCRI) to determine roadside field sobriety tests were the most accurate. SCRI published the following three reports:
  - o California: 1977 (Lab)
  - o California: 1981 (Lab and Field)
  - o Maryland, D.C., V.A., N.C., 1983 (Field)
3. SCRI traveled to law enforcement agencies throughout the United States to select the most commonly used field sobriety tests. Six tests were used in the initial stages of this study.
4. Laboratory research indicated that three of these tests, when administered in a standardized manner, were a highly accurate and reliable battery of tests for distinguishing BACs above 0.10:
  - o Horizontal Gaze Nystagmus (HGN)
  - o Walk-and-Turn (WAT)
  - o One-Leg Stand (OLS)
5. NHTSA analyzed the laboratory test data and found:
  - o HGN, by itself, was 77% accurate
  - o WAT, by itself, was 68% accurate
  - o OLS, by itself, was 65% accurate
  - o By combining HGN and WAT an 80% accuracy can be achieved.
6. The final phase of this study was conducted as a field validation.
  - o Standardized, practical and effective procedures were developed
  - o The tests were determined to discriminate in the field, as well as in the laboratory.

7. The three standardized test were found to be highly reliable in identifying subjects whose BACs were above 0.10. The results of the study unmistakably validated the SFSTs.

#### SFST VALIDATION STUDIES

1. Three SFST validation studies were undertaken between 1995 and 1998:
  - o Colorado - 1995
  - o Florida - 1997
  - o San Diego - 1998
2. The Colorado SFST validation study was the first full field study that utilized law enforcement personnel experienced in the use of SFSTs.
  - o The initial study utilized only a few experienced officers in DWI enforcement in both a laboratory setting and field setting.
  - o Correct arrests decisions were made 93% of the time based on the 3-test battery (HGN, WAT, OLS). Substantially higher than the initial study results.
3. The Florida SFST field validation study was undertaken in order to answer the question of whether SFSTs are valid and reliable indices of the presence of alcohol when used under present day traffic and law enforcement conditions.
  - o Correct decisions to arrest were made 95% of the time based on the 3-test battery (HGN, WAT, OLS).
  - o This is the third SFST field validation study that has been undertaken. Each has shown that the SFST 3-test battery is the only scientifically validated and reliable method for discriminating between impaired and unimpaired drivers.
4. The San Diego SFST validation field study was undertaken because of the nationwide trend towards lower the BAC limits to 0.08. The question to be answered was "does SFST discriminate at BAC's below 0.10".
  - o Correct arrest decisions were made 91% of the time based on the 3-test battery (HGN, WAT, OLS) at the 0.08 level and above.

- o The results of this study provide a clear evidence of the validity of the 3-test battery. To support arrest decisions at above or below 0.08, it strongly suggests that the SFSTs also accurately discriminate BACs at 0.04 and above.

## OVERVIEW OF NYSTAGMUS

### Nystagmus

Nystagmus is defined as an involuntary jerking of the eyes. Alcohol and certain other drugs cause Horizontal Gaze Nystagmus.

### Categories of Nystagmus

There are three general categories of nystagmus:

1. Vestibular Nystagmus is caused by movement or action to the vestibular system.
  - A. Types of vestibular nystagmus:
    - o Rotational Nystagmus occurs when the person is spun around or rotated rapidly, causing the fluid in the inner ear to be disturbed. If it were possible to observe the eyes of a rotating person, they would be seen to jerk noticeably.
    - o Post Rotational Nystagmus is closely related to rotational nystagmus: when the person stops spinning, the fluid in the inner ear remains disturbed for a period of time, and the eyes continue to jerk.
    - o Caloric Nystagmus occurs when fluid motion in the canals of the vestibular system is stimulated by temperature as by putting warm water in one ear and cold in the other.
    - o Positional Alcohol Nystagmus (PAN) occurs when a foreign fluid, such as alcohol, that alters the specific gravity of the blood is in unequal concentrations in the blood and the vestibular system.
2. Nystagmus can also result directly from neural activity:
  - o Optokinetic Nystagmus occurs when the eyes fixate on an object that suddenly moves out of sight, or when the eyes watch sharply contrasting moving images.

Examples of optokinetic nystagmus include watching strobe lights, rotating lights, or rapidly moving traffic in close proximity. The Horizontal Gaze Nystagmus test will not be influenced by optokinetic nystagmus when administered properly.

- o Physiological Nystagmus is a natural nystagmus that keeps the sensory cells of the eye from tiring. It is the most common type of nystagmus. It happens to all of us, all the time. This type of nystagmus produces extremely minor tremors or jerks of the eyes. These tremors are generally too small to be seen with the naked eye. Physiological nystagmus will have no impact on our Standardized Field Sobriety Tests, because its tremors are generally invisible.
- o Gaze Nystagmus occurs as the eyes move from the center position. Gaze nystagmus is separated into three types:

(1) Horizontal Gaze Nystagmus occurs as the eyes move to the side. It is the observation of the eyes for Horizontal Gaze Nystagmus that provides the first and most accurate test in the Standardized Field Sobriety Test battery. Although this type of nystagmus is most accurate for determining alcohol impairment, its presence may also indicate use of certain other drugs.

(2) Vertical Gaze Nystagmus is an up and down jerking of the eyes which occurs when the eyes gaze upward at maximum elevation. The presence of this type of nystagmus is associated with high doses of alcohol for that individual and certain other drugs. The drugs that cause Vertical Gaze Nystagmus are the same ones that cause Horizontal Gaze Nystagmus.

Note: There is no drug that will cause Vertical Gaze Nystagmus that does not cause Horizontal Gaze Nystagmus. If Vertical Gaze Nystagmus is present and Horizontal Gaze Nystagmus is not, it could be a medical condition.

(3) Resting Nystagmus is referred to as a jerking of the eyes as they look straight ahead. Its presence usually indicates a pathology or high doses of a drug such as PCP. If detected, take precautions. (**OFFICER SAFETY.**)

3. Nystagmus may also be caused by certain pathological disorders. They include brain tumors and other brain damage or some diseases of the inner ear. These pathological disorders occur in very few people and in even fewer drivers.

## Medical Impairment

The examinations that you can conduct to assess possible medical impairment include:

- o Pupil size
- o Resting Nystagmus
- o Tracking ability

## PROCEDURES

### Procedures to Assess Possible Medical Impairment

Prior to administration of HGN, the eyes are checked for equal pupil size, resting nystagmus, and equal tracking (can they follow an object together). If the eyes do not track together, or if the pupils are noticeably unequal in size, the chance of medical disorders or injuries causing the nystagmus is present.

### Procedures of Horizontal Gaze Nystagmus Testing: The Three Clues

The test you will use at roadside is "Horizontal Gaze Nystagmus" -- an involuntary jerking of the eyes occurring as the eyes gaze toward the side. Some jerking will be seen if the eyes are moved far enough to the side.

1. The Lack of Smooth Pursuit (Clue Number One) - The eyes can be observed to jerk or "bounce" as they follow a smoothly moving stimulus, such as a pencil or penlight. The eyes of an unimpaired person will follow smoothly, i.e., a marble rolling across a smooth pane of glass, or windshield wipers moving across a wet windshield.
2. Distinct and Sustained Nystagmus At Maximum Deviation (Clue Number Two) - Distinct and sustained nystagmus will be evident when the eye is held at maximum deviation for a minimum of four seconds. People exhibit slight jerking of the eye at maximum deviation, even when unimpaired, but this will not be evident or sustained for more than a few seconds. When impaired by alcohol, the jerking will be larger, more pronounced, sustained for more than four seconds, and easily observable.
3. Onset of Nystagmus Prior To 45 Degrees (Clue Number Three) - The point at which the eye is first seen jerking. If the jerking begins prior to 45 degrees it is evident that the person has a BAC above 0.08, as shown by recent research.

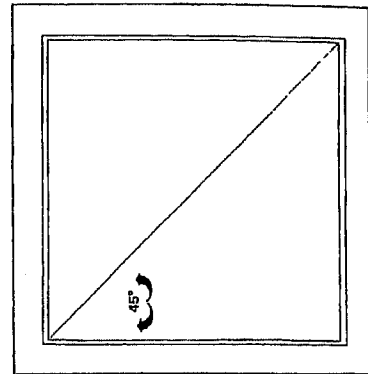
The higher the degree of impairment, the sooner the nystagmus will be observable.

### Estimating a 45-Degree Angle

It is important to know how to estimate a 45-degree angle. How far you position the stimulus from the suspect's nose is a critical factor in estimating a 45-degree angle. (i.e., If the stimulus is held 12" in front of the suspect's nose, it should be moved 12" to the side to reach 45 degrees. Likewise, if the stimulus is held 15" in front of the suspect's nose, it should be moved 15" to the side to reach 45 degrees.)

For practice, a 45-degree template can be prepared by making a 15"-square cardboard and connecting its opposite corners with a diagonal line.

To use this device, hold it up so that the person's nose is above the diagonal line. Be certain that one edge of the template is centered on the nose and perpendicular to (or, at right angles to) the face. Have the person you are examining follow a penlight or some other object until suspect is looking down the 45-degree diagonal. Note the position of the eye. With practice, you should be able to recognize this angle without using the template.



### Specific Procedures

If the suspect is wearing eyeglasses, have them removed.

Give the suspect the following instructions from a safe position. **(FOR OFFICER SAFETY KEEP YOUR WEAPON AWAY FROM THE SUSPECT):**

- o "I am going to check your eyes."
- o "Keep your head still and follow this stimulus with your eyes only."
- o "Keep following the stimulus with your eyes until I tell you to stop."

Position the stimulus approximately 12-15 inches from the suspect's nose and slightly above eye level. Check to see that both pupils are equal in size. If they are not, this may indicate a head injury. You may observe Resting Nystagmus at this time, then check the suspect's eyes for the ability to track together. Move the stimulus smoothly across the suspect's entire field of vision. Check to see if the eyes track the stimulus together or one lags behind the other. If the eyes don't track together it could indicate a possible medical disorder, injury, or blindness.