



# SFST Refresher

DWI Detection and Standardized Field Sobriety Testing  
Refresher

## PARTICIPANT MANUAL





## Acknowledgements

The National Highway Traffic Safety Administration (NHTSA) and the International Association of Chiefs of Police (IACP) would like to thank the following individuals for their contributions in updating and revising the 2023 Impaired Driving Enforcement Programs (DRE, SFST, ARIDE) curricula.

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## Preface

The DWI Detection and Standardized Field Sobriety Testing (SFST) training curriculum prepares police officers and other qualified persons to conduct the SFSTs for use in driving while impaired (DWI) investigations. This training, developed under the auspices and direction of NHTSA and the IACP, has experienced remarkable success since its inception in the early 1980s.

As in any educational training program, an instructor guide 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 IACP Technical Advisory Panel (TAP) with contributions from sources in health care science, toxicology, jurisprudence, optometry, 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 SFST curriculum. The reorganized manuals are then prepared and disseminated, both domestically and internationally. Changes will take effect after approval by TAP, unless otherwise specified or when so designated.

The procedures outlined in this manual describe how the SFSTs are to be administered under ideal conditions. We recognize the SFSTs will not always be administered under ideal conditions in the field because such conditions do not always exist. Even when administered under less than ideal conditions, they will generally serve as valid and useful indicators of impairment. Slight variations from the ideal, i.e., the inability to find a perfectly smooth surface at roadside, may have some effect on the evidentiary weight given to the results; however, this does not necessarily make the SFSTs invalid.

# 1 SFST Refresher

## Introduction and Overview

### LEARNING OBJECTIVES

- State the goals and objectives of the training
- Describe the training schedule and activities
- Describe the current DWI problem
- Identify the elements of the drug problem
- Define and describe impaired-driving programs
- Understand the roles and responsibilities of the DRE and how this course supports the DEC Program

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### LEARNING ACTIVITIES

- Instructor-Led Presentation
- Written Examination

## A. Welcoming Remarks and Objectives

Session 1 – Introduction and Overview

### Learning Objectives

- State goals and objectives of training
- Describe training schedule and activities
- Describe current DWI problem
- Identify elements of drug problem



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Slide 2.

Session 1 – Introduction and Overview

### Learning Objectives

- Define and describe impaired-driving enforcement programs
- Understand roles and responsibilities of DRE and how this course supports DEC Program



DWI DETECTION & SFST REFRESHER

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Welcome to the DWI Detection and Standardized Field Sobriety Testing (SFST) Refresher Course. The SFST Refresher training ensures participants retain the important concepts provided in the initial DWI Detection and SFST course through detailed explanations of the evaluation procedures, careful demonstrations of these procedures (both "live" and via video), and ample opportunities for the participants to practice administering the evaluations.

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

- State the goals and objectives of the training
- Describe the training schedule and activities
- Describe the current DWI problem

- Identify the elements of the drug problem
- Define and describe impaired-driving enforcement programs
- Understand the roles and responsibilities of the DRE and how this course supports the DEC Program

## B. Administrative Details

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### C. Course Goal

Session 1 – Introduction and Overview

## Course Goal

Increase deterrence of DWI violations; thereby reducing the number of crashes, deaths, and injuries caused by impaired drivers.



DWI DETECTION & SFST REFRESHER

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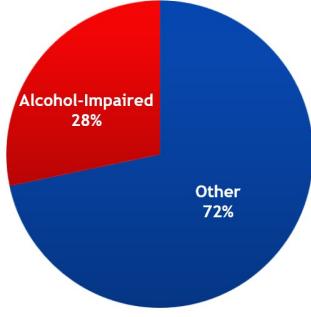
The goal of this training is to ultimately increase deterrence of DWI violations; thereby reducing the number of crashes, deaths, and injuries caused by impaired drivers.

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### D. Driving Under the Influence

Session 1 – Introduction and Overview

## DWI Fatalities



Category	Percentage
Alcohol-Impaired	28%
Other	72%

DWI DETECTION & SFST REFRESHER

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Slide 6.

In 2019, 10,142 lives were lost in alcohol-impaired crashes representing 28% of the total motor vehicle fatalities in the U.S.

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## Slide 7.

In 2020 there were 11,654 fatalities in motor vehicle traffic crashes in which at least one driver was alcohol-impaired. This represented 30 percent of all traffic fatalities in the United States for the year. Spread across the year, this amounted to 32 people dying each day in alcohol-impaired crashes, or one person every 45 minutes.

**Source:**

National Center for Statistics and Analysis. (2022, April). *Alcohol-impaired driving: 2020 data* (Traffic Safety Facts. Report No. DOT HS 813 294).

It is important to understand the magnitude of the problem of driving while impaired by drugs and alcohol.

The surveys indicate that males are twice as likely as females to drive under the influence of alcohol. Overall, 8.2% of Americans reported they had driven at least once in the last year under the influence of alcohol. Approximately 11.8 million people reported they drove under the influence of illicit drugs during the last year.

**Source:**

Substance Abuse and Mental Health Services Administration. (2018). *Key substance use and mental health indicators in the United States: Results from the 2017 National Survey on Drug Use and Health*. (HHS Publication No. SMA 18-5068, NSDUH Series H-53). Rockville, MD:: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from Retrieved from <https://www.samhsa.gov/data/>

## E. Impaired Driving Enforcement Programs

**NHTSA/IACP-Supported Impaired Driving Programs**

- **Training:** SFST; ARIDE; DEC Program; Prosecuting the Drugged Driver; ARIDE Refresher; DRE Expert Testimony
- **Enforcement:** Selective Traffic Enforcement
- **Prosecution/Judges:** Traffic Safety Resource Prosecutors; Judicial Education

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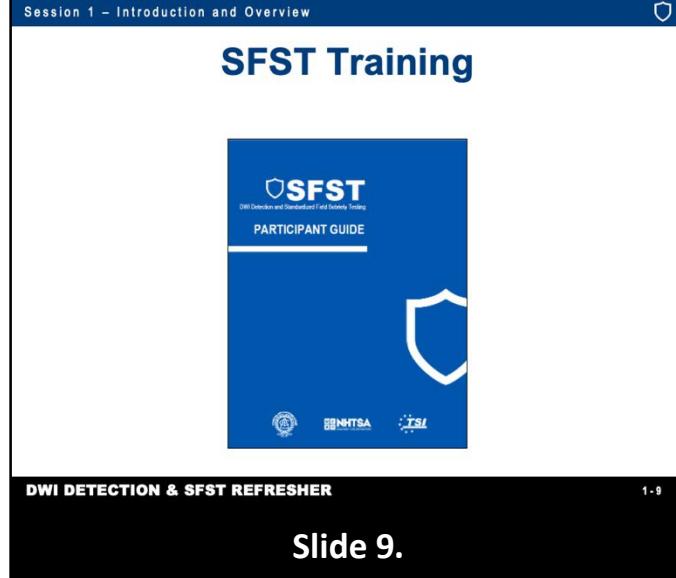
**Slide 8.**

NHTSA/IACP supports training, enforcement, prosecution, and adjudication.

One of the most critical support activities NHTSA provides is TRAINING. Some examples of law enforcement and justice professional training NHTSA provides and supports are:

- SFST
- ARIDE
- Drug Evaluation and Classification (DEC) Program
- Prosecuting the Drugged Driver
- ARIDE Refresher
- DRE Expert Testimony
- Lethal Weapon
- Protecting Lives, Saving Futures

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The SFST practitioner training is the cornerstone for impaired driving training and enforcement. It is the foundation for this training as well as the DEC Program and is an integral part of all alcohol and drug-impaired driving enforcement initiatives.

### **DWI Detection and Standardized Field Sobriety Testing**

The SFSTs are a set of tests that include the following:

- Horizontal Gaze Nystagmus (HGN)
- Walk and Turn (WAT)
- One Leg Stand (OLS)

These tests are designed to be administered and evaluated in a standardized manner to obtain validated indicators of impairment based on NHTSA-supported research.

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## F. Drugs and Highway Safety

Session 1 – Introduction and Overview

2020 National Survey  
Drug Use and Health (NSDUH)

- Slightly less than half of Americans consider themselves drinkers
- 6.4% describe themselves as heavy drinkers
- 37.3 million people used illicit drugs in the past month

DWI DETECTION & SFST REFRESHER

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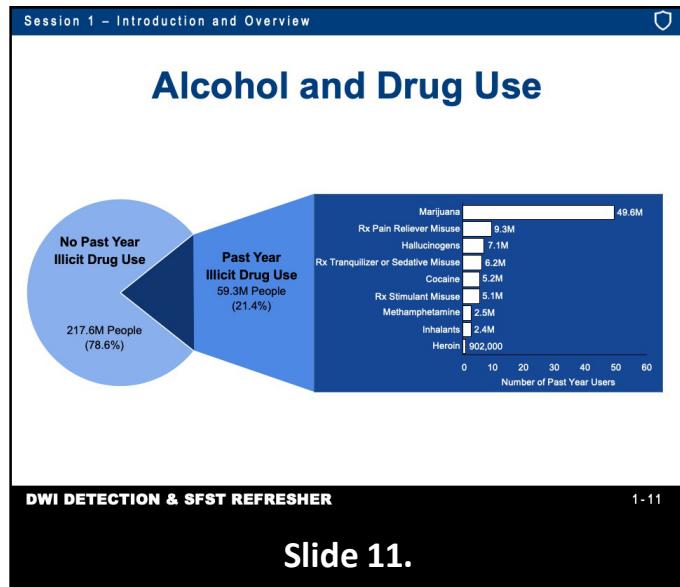
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*Alcohol and Drug Use:* Social drinking is considered acceptable in many societies. It is important to understand the use of alcohol in the context of society since it is related to the enforcement and adjudication of DWI offenses. The 2020 National Survey on Drug Use and Health (NSDUH) reports that slightly less than half of Americans, 138.5 million people, consider themselves drinkers, 17.7 million people describe themselves as heavy drinkers (consuming 15 drinks or more per week), 37.3 million people or 13.5% of the population used illicit drugs in the past month, and Marijuana was used by approximately 88 percent of all current illicit drug users.

**Source:**

Substance Abuse and Mental Health Services Administration. (2021). *Key Substance Use and Mental Health Indicators in the United States: Results from the 2020 National Survey on Drug Use and Health*. (HHS Publication No. PEP21-07-01-003, NSDUH Series H-56). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>

Although these statistics are significant, it is reasonable to assume the problem is even larger when considering legal or prescription drugs used in a manner other than for what they have been prescribed or produced. When looking at drug use specifically, it is helpful to see the trends based on specific types of drugs.



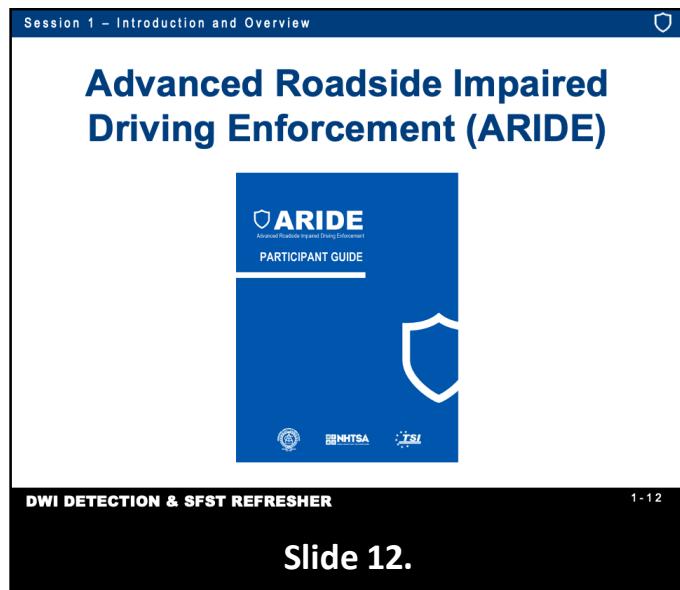
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The National Survey on Drug Use and Health (NSDUH) provides additional details on drugs used within the past 30 days in a manner other than prescription:

Type	Number of Users
Cocaine	1.8 Million
Hallucinogens	1.8 Million
Psychotherapeutics	16.8 Million
Pain Relievers	2.5 Million
Tranquilizers	2.2 Million
Stimulants	1.5 Million
Sedatives	2.2 Million

**Source:**

Substance Abuse and Mental Health Services Administration. (2021). *Key Substance Use and Mental Health Indicators in the United States: Results from the 2020 National Survey on Drug Use and Health*. (HHS Publication No. PEP21-07-01-003, NSDUH Series H-56). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>



### Advanced Roadside Impaired Driving Enforcement (ARIDE)

ARIDE provides officers the ability to build on the knowledge gained through their training and experience related to the SFSTs. Many law enforcement officers have encountered subjects who appear to be impaired by a substance other than alcohol or seem to be displaying signs and symptoms which are inconsistent with their BAC test results.

ARIDE delivers the knowledge and information that will help officers better assess impaired drivers at roadside. It also demonstrates the value of having a DRE on staff in an agency and serves as a motivation for officers to attend a DRE course in the future.

A subsequent goal of ARIDE is it will facilitate better utilization of DREs in the field.

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Session 1 – Introduction and Overview

ARIDE Goal

- Observe, identify, and articulate the signs of impairment related to drugs, alcohol, or a combination of both in order to reduce the number of impaired driving incidents, serious injury, and fatal crashes.

DWI DETECTION & SFST REFRESHER

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The desired outcome of the training is:

- The participant will better understand the role of the DRE and will be able to use their expertise more effectively
- For those law enforcement agencies with no DREs or limited access to their services, this course will help officers make informed decisions related to testing, documentation, and reporting drugged driving arrests

ARIDE is intended to bridge the gap between the SFST and DRE course and to provide a level of awareness to both law enforcement and other criminal justice professionals in the area of drug impairment in the context of traffic safety.

ARIDE trains law enforcement officers to observe, identify, and articulate the signs of impairment related to drugs, alcohol, or a combination of both in order to reduce the number of impaired driving incidents, serious injury, and fatal crashes.

Often times officers come in contact with the drug-impaired driver. There are many things that could be happening:

- The officer is unfamiliar with the indicators of drug impairment, therefore does nothing with the subject
- Recognizes there is something wrong with the driver but does not know how to address the issue
- Allows subject to continue on their way
- Drives the subject home or allows the subject to ride home with another individual
- Not familiar with the resources available to them

## Drug Evaluation and Classification (DEC) Program

The ultimate goal of the DEC Program is to train officers to be DREs to help prevent crashes and avoid deaths and injuries by improving enforcement of drug-impaired driving investigations.

### Drug Evaluation and Classification Program

The ultimate goal of the DEC Program is to train officers to be DREs to help prevent crashes and avoid deaths and injuries by improving enforcement of drug-impaired driving investigations.

The DRE officer is trained to conduct a detailed evaluation, consisting of twelve (12) steps and obtain other evidence that can be articulated as an opinion.

An officer who successfully completes all phases of the DEC Program is known as a DRE. They can reach reasonably accurate conclusions concerning the category or categories of drug(s) or medical conditions causing the impairment observed in the subject. Based on these informed conclusions, the DRE officer can request the collection and analysis of an appropriate biological sample (blood, urine, or saliva) to obtain corroborative, scientific evidence of the subject's drug use.

The progression between each of the impaired driving enforcement programs is:

- The foundation is SFST
- The intermediate level is ARIDE
- The final stage is the DEC Program

### Drug Recognition Expert Training

To obtain a DRE Certification the law enforcement officer must complete 72 hours of classroom training, field certifications, and a Certification Knowledge Examination

In order to retain their certification, the DRE must participate in continuing education courses, complete a recertification training course every two years, maintain a log of all evaluations completed in training and as part of any enforcement activities, and meet other administrative requirements as established in the IACP International Standards governing the DEC Program. The State DEC Program Coordinators may place other standards on each DRE specific to that State.

Session 1 – Introduction and Overview

## DWI Detection Phases

Phase One	Phase Two	Phase Three
		
Vehicle in Motion	Personal Contact	Pre-Arrest Screening

DWI DETECTION & SFST REFRESHER

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### DWI Detection and Standardized Field Sobriety Testing Program

The DWI detection process includes three phases:

1. Vehicle in motion
2. Personal contact
3. Pre-arrest screening

Throughout this training we will be discussing concepts related to these three

phases. The SFSTs are a set of tests that include the following:

- Horizontal Gaze Nystagmus (HGN)
- Walk and Turn (WAT)
- One Leg Stand (OLS)

These tests are designed to be administered and evaluated in a standardized manner to obtain validated indicators of impairment based on NHTSA/IACP-supported research.

## G. Glossary of Terms

Session 1 – Introduction and Overview

### Glossary of Terms

ADDICTION: Habitual, repeated use of a substance, physiological dependency, and loss of one's voluntary control.

ALVEOLAR BREATH: Breath from the lungs.

BLOOD ALCOHOL CONCENTRATION (BAC): The amount of alcohol in the blood.

BREATH ALCOHOL CONCENTRATION (BAC): The amount of alcohol in the breath, measured by a breath testing device.

CLUE: Something that leads to the solution.

CUE: A reminder or prompting as a reminder.

**SFST**  
DUI Detection and Standardized Field Sobriety Testing  
PARTICIPANT GUIDE

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DWI DETECTION & SFST REFRESHER

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**Slide 16.**

The Glossary of Terms used in the training is at the end of this session.

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## H. Course Pre-Test Administration

Session 1 – Introduction and Overview

### Questions?

DWI DETECTION & SFST REFRESHER

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**Slide 17.**

## DWI DETECTION AND STANDARDIZED FIELD SOBRIETY TESTING (SFST)

### GLOSSARY OF TERMS

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

**ALVEOLAR BREATH:** Breath from the deepest part of the lung.

**BLOOD ALCOHOL CONCENTRATION (BAC):** The percentage of alcohol in a person's blood.

**BREATH ALCOHOL CONCENTRATION (BrAC):** The percentage of alcohol in a person's breath, as measured by a breath testing device.

**CLUE:** Something that leads to the solution of a problem.

**CUE:** A reminder or prompting as a signal to do something. A suggestion or a hint.

**DIVIDED ATTENTION:** Concentrating on more than one thing at a time.

**DIVIDED ATTENTION TEST:** A test which requires the subject to concentrate on both mental and physical tasks at the same time. The two psychophysical tests Walk and Turn (WAT) and One Leg Stand (OLS) require the subject to divide their attention.

**DRUGrecognition EXPERT (DRE):** An individual who successfully completed all phases of the DRE training requirements for certification established by the IACP and NHTSA. The word "evaluator," "technician," or similar words may be used as a substitute for "expert," depending upon locale or jurisdiction.

**DWI/DUI:** The acronym "DWI" means driving while impaired and is synonymous with the acronym "DUI", driving under the influence or other acronyms used to denote impaired driving. These terms refer to any and all offenses involving the operation of vehicles by persons under the influence of alcohol and/or other drugs.

**DWI DETECTION PROCESS:** The entire process of identifying and gathering evidence to determine whether or not a suspect should be arrested for a DWI violation. The DWI detection process has three phases:

- Phase One – Vehicle in Motion
- Phase Two – Personal Contact
- Phase Three – Pre-Arrest Screening

**EVIDENCE:** Any means by which some alleged fact that has been submitted to investigation may either be established or disproved. Evidence of a DWI violation may be of various types:

- a. Physical (or real) evidence: something tangible, visible, or audible
- b. Well established facts (judicial notice)
- c. Demonstrative evidence: demonstrations performed in the courtroom
- d. Written matter or documentation
- e. Testimony

**EXPERT WITNESS:** A person skilled in some art, trade, science or profession, having knowledge of matters not within the knowledge of persons of average education, learning and experience, who 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.)

**FIELD SOBRIETY TEST:** Any one of several roadside tests that can be used to determine whether a subject is impaired.

**GAIT ATAXIA:** An unsteady, staggering gait (walk) in which walking is uncoordinated and appears to be "not ordered."

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

**HORIZONTAL GAZE NYSTAGMUS (HGN):** Involuntary jerking of the eyes occurring as the eyes gaze to the side. The first test administered in the SFSTs.

**IMPAIRMENT:** One of the several items used to describe the degradation of mental and/or physical abilities necessary for safely operating a vehicle.

**IMPLIED CONSENT LAW:** Suspected DWI drivers are deemed to have given their consent to submit to chemical testing. If the driver fails to provide a chemical test, they can be subject to license sanctions.

**NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION:** An Administration within the United States Department of Transportation that exercises primary responsibility for coordinating federal efforts to ensure the safe design and operation of motor vehicles.

**NYSTAGMUS:** An involuntary jerking of the eyes.

**ONE LEG STAND (OLS):** A divided attention field sobriety test. One of the tests administered in the SFSTs.

**PER SE:** Used to describe a law which makes it illegal to drive while having a certain percentage of alcohol in the blood or breath.

**PERSONAL CONTACT:** The second phase in the DWI detection process. In this phase the officer observes and interviews the driver face to face; determines whether to ask the driver to step from the vehicle; and observes the driver's exit and walk from the vehicle.

**PRE-ARREST SCREENING:** The third phase in the DWI detection process. In this phase the officer administers field sobriety tests to determine whether there is probable cause to arrest the driver for DWI. Depending on agency policy, the officer may administer or could arrange to have a preliminary breath test conducted.

**PRELIMINARY BREATH TEST (PBT):** A pre-arrest breath test administered during investigation of a possible DWI violator to obtain an indication of the person's blood alcohol concentration.

**PROBABLE CAUSE:** It is more than mere suspicion; facts and circumstances within the officer's knowledge, and of which he or she has reasonably trustworthy information, are sufficient to warrant a person of reasonable caution to believe that an offense has been or is being committed.

**PSYCHOPHYSICAL:** "Mind/Body." Used to describe field sobriety tests that measure a person's ability to perform both mental and physical tasks.

**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.

**REASONABLE SUSPICION:** Less than probable cause but more than mere suspicion; exists when an officer, in light of his or her training and experience, reasonably believes and can articulate that criminal activity is taking, has taken or is about to take place.

**RESTING NYSTAGMUS:** Jerking of the eyes as they look straight ahead.

**STANDARDIZED FIELD SOBRIETY TESTS:** There are three NHTSA/IACP-approved SFSTs, namely Horizontal Gaze Nystagmus (HGN), Walk and Turn (WAT), and One Leg Stand (OLS). Based on a series of controlled laboratory and field studies, scientifically validated clues of impairment have been identified for each of these three tests. They are the only NHTSA/IACP-approved Standardized Field Sobriety Tests for which validated clues have been identified for DWI investigations.

**TRAFFIC SAFETY RESOURCE PROSECUTOR (TSRP):** Usually a current or former prosecutor who provides training, education and technical support to traffic crimes prosecutors and law enforcement agencies throughout their State. (For the contact information of your TSRP, contact your Highway Safety Office).

**VALID:** Conforming to accepted principles. Producing accurate and reliable results; effective.

**VALIDATED:** A documented act of demonstrating that a procedure, process, and/or activity will consistently lead to accurate and reliable results.

**VEHICLE IN MOTION:** The first phase in the DWI detection process. In this phase the officer observes the vehicle in operation, determines whether to stop the vehicle, and observes the stopping sequence.

**VERTICAL GAZE NYSTAGMUS:** An involuntary jerking of the eyes (up and down) which occurs when the eyes gaze upward at maximum elevation. The jerking should be distinct and sustained.

**WALK AND TURN (WAT):** A divided attention field sobriety test. One of the tests administered in SFSTs.

# 2 SFST Refresher

## Vehicle in Motion and Personal Contact

### LEARNING OBJECTIVES

- Identify typical cues of Detection Phase One
- Describe the observed cues clearly and convincingly
- Understand the significance of the problem of impaired motorcycle riders
- Obtain the skills necessary to detect, arrest, and prosecute alcohol- and drug-impaired motorcyclists

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### LEARNING ACTIVITIES

- Instructor-Led Presentations
- Video Presentation
- Instructor-Led Demonstrations
- Participants Presentations

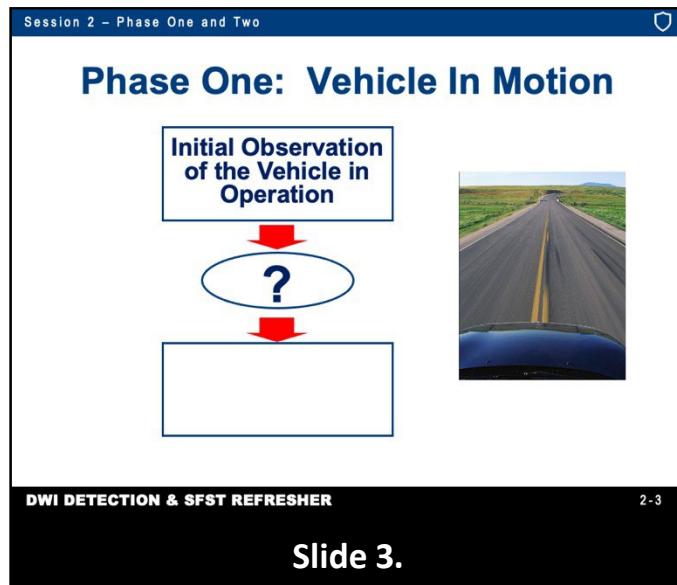


## Learning Objectives

- Identify typical cues of Detection Phase One and Phase Two
- Describe observed cues clearly and convincingly
- Understand significance of the impaired motorcycle rider's problem
- Obtain skills necessary to detect, arrest, and prosecute alcohol- and drug-impaired motorcyclists



## A. Overview: Tasks and Decision



Your first task in Phase One: Vehicle in Motion is to observe the vehicle in operation and to note any initial cues of a possible DWI violation. At this point you must decide whether there is reasonable suspicion to stop the vehicle; either to conduct further investigation to determine if the driver may be impaired or for another traffic violation. You are not committed to arresting the driver for DWI based on this initial observation, but rather should concentrate on gathering all relevant evidence that may suggest impairment. Your second task during phase one is to observe the manner in which the driver responds to your signal to stop and to note any additional evidence of a DWI violation.

The first task, observing the vehicle in motion, begins when you first notice the vehicle, driver, or both. Your attention may be drawn to the vehicle by such things as:

- A moving traffic violation
- An equipment violation
- An expired registration or inspection sticker
- Unusual driving actions such as weaving within a lane or moving at a slower than normal speed
- Evidence of drinking or drugs in vehicle

If this initial observation discloses vehicle maneuvers or human behaviors that may be associated with impairment, you may develop an initial suspicion of DWI. Based upon this initial observation of the vehicle in motion, you must decide whether there is reasonable suspicion to stop the vehicle. At this point, you have three choices: (1) Stop the vehicle; (2) Continue to observe the vehicle; (3) Disregard the vehicle.

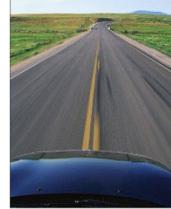
## Phase One: Vehicle In Motion

Should I  
Stop the  
Vehicle?

Initial Observation  
of the Vehicle in  
Operation



Observation of  
the Stop



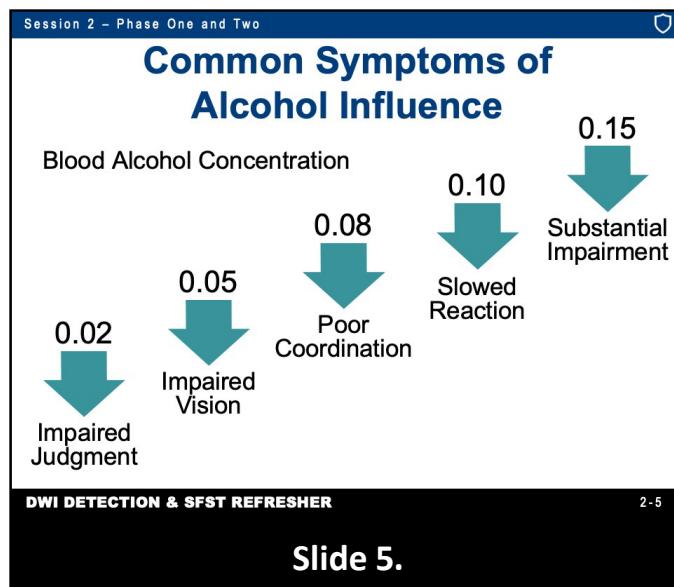
Alternatives to stopping the vehicle include delaying the stop/no stop decision in order to continue observing the vehicle and/or disregarding the vehicle.

Whenever there is a valid reason to stop a vehicle, the officer should be alert to the possibility the driver may be impaired by alcohol and/or other drugs. Once the stop command has been communicated to the suspect driver, the officer must closely observe the driver's actions and vehicle maneuvers during the stopping sequence.

Sometimes significant evidence of alcohol influence comes to light during the stopping sequence. In some cases, the stopping sequence might produce the first suspicion of DWI. Drivers impaired by alcohol and/or other drugs may respond in unexpected and dangerous ways to the stop command.

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## B. Initial Observations: Visual Cues of Impaired Operations (Automobiles)

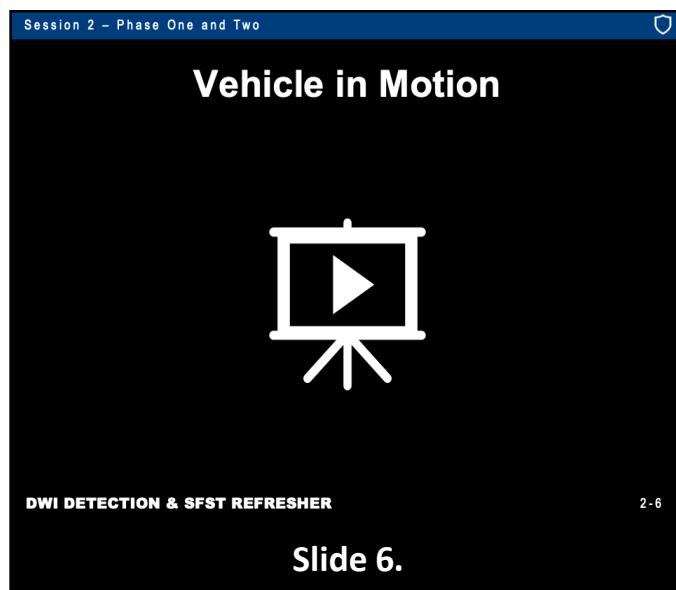


Blood Alcohol Concentration (BAC) <sup>1</sup>	Typical Effects	Predictable Effects on Driving
.02	<ul style="list-style-type: none"> <li>Some loss of judgment</li> <li>Relaxation</li> <li>Slight body warmth</li> <li>Altered mood</li> </ul>	<ul style="list-style-type: none"> <li>Decline in visual functions (rapid tracking of a moving target)</li> <li>Decline in ability to perform two tasks at the same time (divided attention)</li> </ul>
.05	<ul style="list-style-type: none"> <li>Exaggerated behavior</li> <li>May have loss of small-muscle control (e.g., focusing your eyes)</li> <li>Impaired judgment</li> <li>Usually good feeling</li> <li>Lowered alertness</li> <li>Release of inhibition</li> </ul>	<ul style="list-style-type: none"> <li>Reduced coordination</li> <li>Reduced ability to track moving objects</li> <li>Difficulty steering</li> <li>Reduced response to emergency driving situation</li> </ul>
.08	<ul style="list-style-type: none"> <li>Muscle coordination becomes poor (e.g., balance, speech, vision, reaction time, and hearing)</li> <li>Harder to detect danger</li> <li>Impaired judgment, self-control, reasoning, and memory</li> </ul>	<ul style="list-style-type: none"> <li>Concentration</li> <li>Short term memory loss</li> <li>Speed control</li> <li>Reduced information processing capability (e.g., signal detection, visual search)</li> <li>Impaired perception</li> </ul>
.10	<ul style="list-style-type: none"> <li>Clear deterioration of reaction time and control</li> <li>Slurred speech, poor coordination, and slowed thinking</li> </ul>	<ul style="list-style-type: none"> <li>Reduced ability to maintain lane position and brake appropriately</li> </ul>
.15	<ul style="list-style-type: none"> <li>Far less muscle control than normal</li> <li>Vomiting may occur (unless this level is reached slowly or a person has developed a high tolerance for alcohol)</li> <li>Significant loss of balance</li> </ul>	<ul style="list-style-type: none"> <li>Substantial impairment in vehicle control, attention to driving task, and in necessary visual and auditory information processing</li> </ul>

<sup>1</sup>Information in this table shows the BAC level at which the effect usually is first observed, and has been gathered from a variety of sources including the National Highway Traffic Safety Administration, the National Institute on Alcohol Abuse and Alcoholism, the American Medical Association, and [www.webMD.com](http://www.webMD.com).

Drivers who are impaired frequently exhibit certain effects or symptoms of impairment. These include slowed reactions, impaired judgment as evidenced by a willingness to take risks, impaired vision, and poor coordination.

Below presents common symptoms of alcohol influence. This unit focuses on alcohol impairment because research currently provides more information about the effects of alcohol on driving than it does about the effects of other drugs on driving. Remember whether the driver is impaired by alcohol and/or drugs, the law enforcement detection process is the same and the offense is still DWI.



The common effects of alcohol on the driver's mental and physical faculties lead to predictable driving violations and vehicle operating characteristics. The National Highway Traffic Safety Administration (NHTSA) sponsored research to identify the most common and reliable initial indicators of DWI. This research identified 24 cues, each with an associated high probability the driver exhibiting the cue is *impaired*. These cues and their associated probabilities are described in the NHTSA publication, [The Visual Detection of DWI Motorists](#). They also are discussed in [Vehicle in Motion](#), a video sponsored by NHTSA to assist law enforcement officers to recognize DWI detection cues.

The Visual Detection of DWI Motorists is located in the Participant Manual.

**Source:**

Stuster, J. (1997). *The Detection of DWI at BACs Below 0.10*. (Final Rep. DOT-HS-808-654). Santa Barbara, CA: Anacapa Sciences, Inc.

NHTSA sponsored research to identify the most common and reliable initial indicators of DWI. Research identified 100 cues, each providing a high probability indication the driver is *under the influence*.

The list was reduced to 24 cues during three field studies involving hundreds of officers and more than 12,000 enforcement stops.

---

Session 2 – Phase One and Two

## Most Common and Reliable Initial Indicators of DWI

- Problems in maintaining proper lane position
- Speed and braking problems
- Vigilance problems
- Judgment problems



DWI DETECTION & SFST REFRESHER 2-7

**Slide 7.**

The driving behaviors are presented in four categories: (1) Problems in maintaining proper lane position; (2) Speed and braking problems; (3) Vigilance problems; and, (4) Judgment problems.

---

Session 2 – Phase One and Two

## Problems Maintaining Proper Lane Position

- Weaving
- Weaving across lane line
- Drifting
- Straddling a lane line
- Swerving
- Almost striking object or vehicle
- Turning with a wide radius



DWI DETECTION & SFST REFRESHER 2-8

**Slide 8.**

There is a brochure published by NHTSA that contains these cues. The title is “The Visual Detection of DWI Motorists” DOT HS 808 677. See Attachment at the end of this session. The first category is Problems in maintaining proper lane position. [p=.50-.75]

- Weaving
- Weaving across lane lines (lane departure)
- Drifting

- Straddling a lane line
- Swerving
- Almost striking object or vehicle
- Turning with a wide radius

---

Session 2 – Phase One and Two

## Speed and Braking Problems

- Stopping problems
- Unnecessary acceleration or deceleration
- Varying speed
- 10 mph or more under the speed limit



DWI DETECTION & SFST REFRESHER

2-9

Slide 9.

Speed and braking problems. [p=.45-.70]

- Stopping problems (too far, too short, or too jerky)
- Unnecessary acceleration or deceleration
- Varying speed
- 10 mph or more under the speed limit

---



## Vigilance Problems

- Driving without headlights at night
- Failure to signal
- Driving wrong way
- Slow response to traffic/officer's signals
- Stopping in lane for no apparent reason



The third problem is vigilance problems. [P=.55-.65]. This category includes, but is not limited to:

- Driving without headlights at night
- Failure to signal or signal inconsistent with action
- Driving in opposing lanes or wrong way on one way
- Slow response to traffic signals
- Slow or failure to respond to officer's signals
- Stopping in lane for no apparent reason

---



## Judgment Problems

- Following too closely
- Improper lane change/turn
- Driving on other than designated roadway
- Stopping inappropriately in response to officer
- Inappropriate or unusual behavior
- Appearing to be impaired

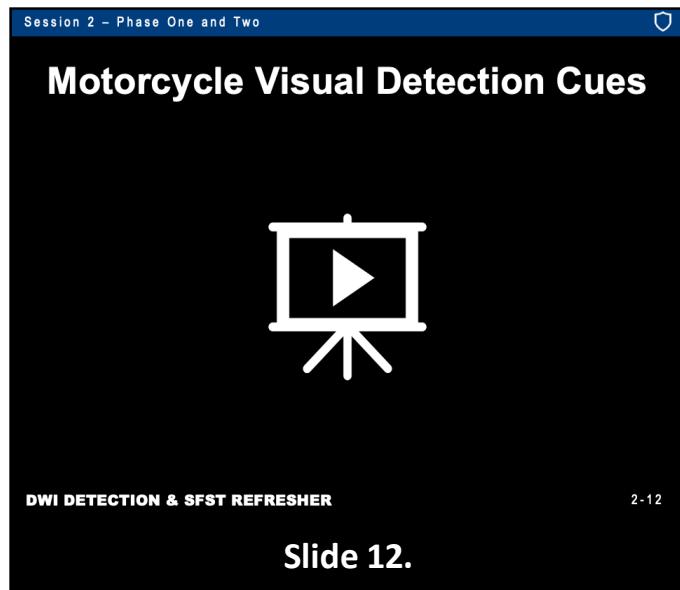


Judgment problems. [P=.35-.90]

- Following too closely (tailgating)
- Improper or unsafe lane change
- Illegal or improper turn
- Driving on other than designated roadway
- Stopping inappropriately in response to officer
- Inappropriate or unusual behavior (throwing objects, arguing, etc.)
- Appearing to be impaired

---

### C. Initial Observations: Visual Cues of Impaired Operation (Motorcycles)



NHTSA estimated in 2020, 27 percent of all motorcycle riders killed were involved in alcohol-impaired crashes.

#### **Sources:**

National Center for Statistics and Analysis. (2020). *Motorcycles: 2020 Data*. (Traffic Safety Facts. Report No. DOT HS 813 294). Washington D.C.: National Highway Traffic Safety Administration.

Stuster, J. (1993). *The Detection of DWI Motorcyclists*. (Final Rep. DOT-HS-807-839). Santa Barbara, CA: Anacapa Sciences, Inc.

NHTSA sponsored research to develop a set of behavioral cues to be used by law enforcement personnel to detect motorcyclists who are operating their vehicles while impaired. These cues can be used both day and night. These cues have been labeled as Excellent Predictors and Good Predictors.

Session 2 – Phase One and Two

## Motorcycle DUI Detection Guide

### Excellent Cues (50% or Greater Probability)

- Drifting during turn or curve
- Trouble with dismount/balance at a stop
- Turning problems
- Inattentive to surroundings
- Inappropriate or unusual behavior
- Weaving



DWI DETECTION & SFST REFRESHER

2-13

### Slide 13.

Research has identified driving impairment cues for motorcyclists.

The Detection of DWI Motorcyclists is located in the Participant Manual.

**Source:**

(2013, March). *The Detection of DWI Motorcyclists*. (Publication: DOT HS 807 856). Washington, D.C.: National Highway Traffic Safety Administration.

Excellent cues (50% or greater probability).

- Drifting during turn or curve
- Trouble with dismount
- Trouble with balance at a stop
- Turning problems (e.g., unsteady, sudden corrections, late braking, improper lean angle)
- Inattentive to surroundings
- Inappropriate or unusual behavior (e.g., carrying or dropping object, urinating at roadside, disorderly conduct, etc.)
- Weaving

---



## Motorcycle DUI Detection Guide

### Good cues (30 to 50% probability)

- Erratic movements while going straight
- Operating without lights at night
- Recklessness
- Following too closely
- Running stop light or sign
- Evasion
- Traveling wrong way



Slide 14.

#### Good Cues (30 to 50% probability)

- Erratic movements while going straight
- Operating without lights at night
- Recklessness
- Following too closely
- Running stop light or sign
- Evasion
- Traveling wrong way



## Elements of the Driving Task



Driving is a complex task, composed of many parts.

- Steering
- Controlling accelerator
- Signaling
- Controlling brake pedal
- Operating clutch (if applicable)
- Operating gearshift (if applicable)
- Observing other traffic
- Observing signal lights, stop signs, other traffic control devices
- Making decisions (whether to stop, turn, speed up, slow down, etc.)
- Many other things

---



## Safe Driving Demands



Safe driving demands the ability to divide attention among numerous simultaneous tasks.

In order to drive safely, a driver must be able to divide attention among all of these various activities. Under the influence of alcohol or many drugs, a person's ability to divide attention becomes impaired. The impaired driver tends to concentrate on certain parts of driving and to disregard other parts.

- Alcohol has impaired ability to divide attention
- Driver is concentrating on steering and controlling the accelerator and brake
- Does not respond to the particular color of the traffic light

Some of the most significant evidence from all three phases of DWI detection can be related directly to the effects of alcohol and/or other drugs on divided attention ability.

---

## D. Recognition and Description of Initial Cues

Session 2 – Phase One and Two

## Vehicle In Motion Initial Cues

**What do you see?**

- Moving violation
- Equipment violation
- Other violation
- Unusual operation
- Anything else

DWI DETECTION & SFST REFRESHER

2 - 17

Slide 17.

What do you see?

Moving violation

- Equipment violation
- Other violation
- Unusual operation
- Anything else (suspicious location, motorists assist)

---



## Phase One: Task One

### Initial Observation of Vehicle Operation

**Requires the ability to:**

- Recognize evidence of alcohol and/or other drug influence
- Describe that evidence clearly and convincingly

**Slide 18.**

The task of making initial observations of vehicle operation is the first step in the job of DWI detection. Proper performance of that task demands two distinct but related abilities: Ability to recognize evidence of alcohol and/or other drug influence and Ability to describe that evidence clearly and convincingly.

It is not enough a police officer observe and recognize symptoms of impaired driving. The officer must be able to articulate what was observed so a judge or jury will have a clear mental image of exactly what took place.

Improving the ability to recognize and clearly describe observational evidence requires practice. It isn't practical to have impaired drivers actually drive through the classroom. The next best thing is to use video to portray typical DWI detection contacts.



## Procedures for Practicing Cue Recognition and Description

- View DWI violation videos
- Take notes
- Testify
  - Choose words carefully
  - Provide as much detail as possible
  - Construct accurate image of observations
- Critique testimony

**Slide 19.**

## Leaving the Shopping Center



Slide 20.

## The Charcoal SUV



Slide 21.

## E. Typical Reinforcing Cues of the Stopping Sequence

Session 2 – Phase One and Two

### Vehicle in Motion: Stopping Sequence

**What do you see?**

- Tries to flee
- No/slow response
- Abrupt weave
- Sudden stop
- Strikes curb
- New violations
- Anything else



DWI DETECTION & SFST REFRESHER

2-22

**Slide 22.**

After the command to stop is given, the alcohol-impaired driver may exhibit additional important evidence of DWI.

Some of these cues are exhibited because the stop command places additional demands on the driver's ability to divide attention.

The signal to stop creates a new situation to which the driver must devote some attention, i.e., emergency flashing lights, siren, etc., that demand and divert the subject's attention.

Signal to stop requires the driver to turn the steering wheel, operate the brake pedal, activate the signal light, etc. As soon as an officer gives the stop command, the subject's driving task becomes more complex. If subject is under the influence, the subject may not be able to handle this more complex driving very well.

---



## Phase One: Task Two Observation of the Stop

### Requires the ability to:

- Recognize evidence of alcohol and/or other drug influence
- Describe that evidence clearly and convincingly

It is the officer's responsibility to capture and convey the additional evidence of impairment that may be exhibited during the stopping sequence. This requires ability to recognize evidence of alcohol and/or other drug influence and requires ability to describe that evidence clearly and convincingly.

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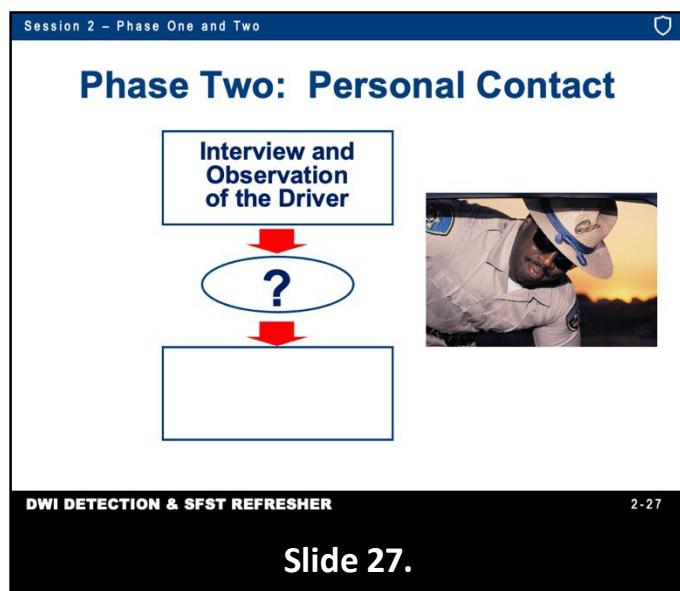
## F. Recognition and Description of Initial and Reinforcing Cues





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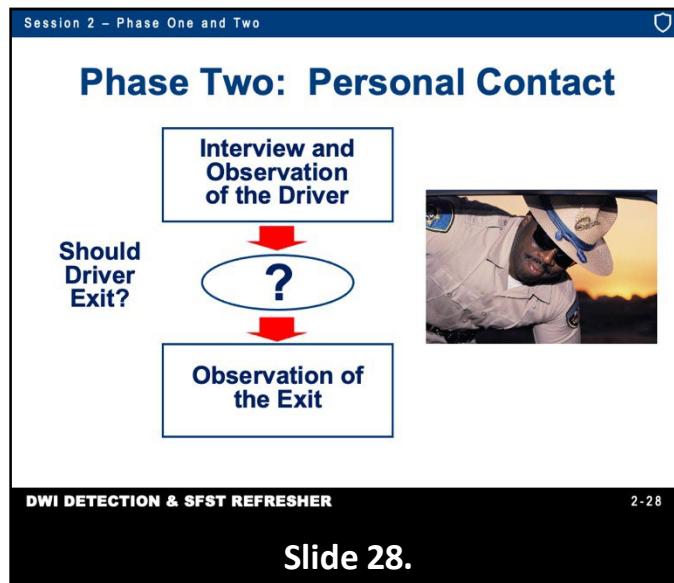
### G. Overview: Tasks and Decision



DWI Detection Phase Two: Personal Contact, like Phases One and Three, comprise two major evidence-gathering tasks and one major decision. Your first task is to approach, observe, and interview the driver while they are still in the vehicle to note any face-to-face evidence of impairment. During this face-to-face contact, you may administer some simple pre-exit sobriety tests to gain additional information to evaluate whether or not the driver is impaired. After this evaluation, you must decide whether to request the driver to exit the vehicle for further field sobriety testing. In some jurisdictions, departmental policy may dictate all drivers stopped on suspicions of DWI be instructed to exit. It is important to note by instructing the driver to exit the vehicle, you are not committed to an arrest; this is simply another step in the DWI detection process. Once you have requested the driver to exit the vehicle, your second task is to observe the manner in which the driver exits and to note any additional evidence of impairment.

**You may initiate Phase Two without Phase One. This may occur, for example, at a checkpoint or when you have responded to the scene of a crash.**

*Task One:* The first task of Phase Two, interview and observation of the driver, begins as soon as the vehicle and patrol vehicle have come to complete stops. It continues through your approach to the vehicle and involves all conversation between you and the driver prior to the driver's exit from the vehicle.



You may have developed a strong suspicion the driver is impaired prior to the face-to-face observation and interview. You may have developed this suspicion by observing something unusual while the vehicle was in motion or during the stopping sequence. You may have developed no suspicion of DWI prior to the face-to-face contact. The vehicle operation and the stop may have been normal; you may have seen no actions suggesting DWI.

For example, you may have stopped the vehicle for an equipment/registration violation or where no unusual driving was evident. In some cases, Phase One will have been absent. For example, you may first encounter the driver and vehicle after a crash or when responding to a request for motorist assistance. Regardless of the evidence that may have come to light during Detection Phase One, your initial face-to-face contact with the driver usually provides the first definite indicators the driver may be impaired.

*Decision:* Based upon your face-to-face interview and observation of the driver, and upon your previous observations of the vehicle in motion and the stopping sequence, you must decide whether there is sufficient reason to instruct the driver to step from the vehicle. For some law enforcement officers, this decision is automatic since their agency's policy dictates the driver always be told to exit the vehicle, regardless of the cause for the stop.

Other agencies, however, treat this as a discretionary decision to be based on what the officer sees, hears, and smells during observation and interview with the driver while the driver is

seated in the vehicle. If you decide to instruct the driver to exit, closely observe the driver's actions during the exit from the vehicle and note any evidence of impairment.

---

## H. Typical Investigation Clues of the Driver Interview

Session 2 – Phase One and Two

### Personal Contact

What do you see?



DWI DETECTION & SFST REFRESHER

2-29

Slide 29.

Face-to-face observation and interview of the driver allows you to use three senses to gather evidence of alcohol and/or other drug influence.

- The sense of sight
- The sense of hearing
- The sense of smell

There are a number of things you might see during the interview that would be describable clues or evidence of alcohol and/or other drug influence. Among them are:

---

## What Do You See?

- Bloodshot eyes
- Soiled clothing
- Fumbling fingers
- Alcohol containers
- Drug and drug paraphernalia
- Bruises, bumps, scratches
- Unusual actions

Slide 30.

- Bloodshot eyes
- Soiled clothing
- Fumbling fingers
- Alcohol containers
- Drugs or drug paraphernalia
- Bruises, bumps or scratches
- Unusual actions

## Personal Contact

What do you hear?



Slide 31.

Among the things you might hear during the interview that would be describable clues or evidence of alcohol and/or other drug influence are these:

## What Do You Hear?

- Slurred speech
- Admission of drinking
- Inconsistent responses
- Unusual statements
- Abusive language
- Anything else

Slide 32.

- Slurred speech
- Admission of drinking
- Inconsistent responses
- Unusual statements
- Abusive language
- Anything else

## Personal Contact

What do you smell?



Slide 33.

There are things you might smell during the interview that would be describable clues or evidence of alcohol and/or other drug influence. Typically, these include:



## What Do You Smell?

- Alcoholic beverage
- Marijuana
- “Cover-up” odors
- Other unusual odors

Slide 34.

- Alcoholic beverages
- Marijuana
- Cover up odors
- Other unusual odors

---



## Phase Two: Task One Face to Face Observation and Interview of Driver

**Requires the ability to:**

- Recognize the sensory evidence of alcohol and/or other drug influence
- Describe that evidence clearly and convincingly

Slide 35.

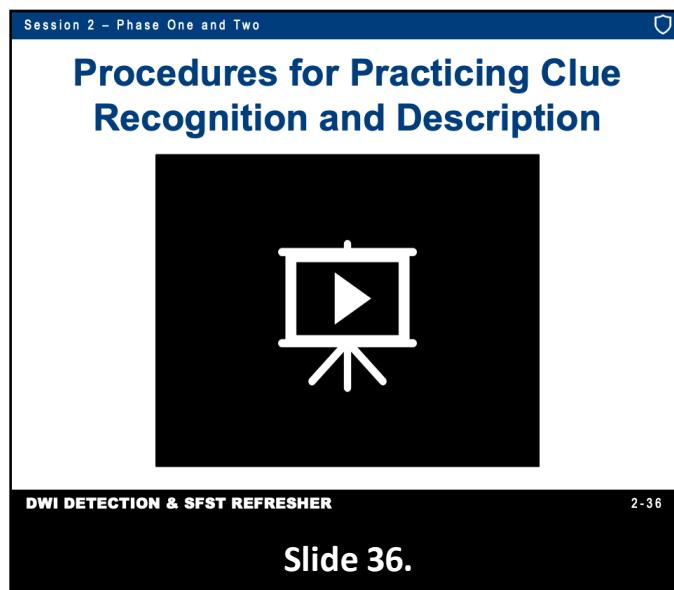
Proper face-to-face observation and interview of the driver demands two distinct but related abilities; The ability to recognize the sensory evidence of alcohol and/or other drug influence; and the ability to describe that evidence clearly and convincingly. Developing these abilities requires practice.

---

## I. Recognition and Description of Investigation Clues

A basic purpose of the face-to-face observation and interview of the driver is to identify and gather evidence of alcohol and/or other drug influence. This is the purpose of each task in each phase of DWI detection. During the face-to-face observation and interview stage, it is not necessary to gather sufficient evidence to arrest the driver immediately for DWI.

---



You will have to base your description of the driver's possible impairment strictly on what you see and hear during the face-to-face contact. Both senses provide some critically important evidence, not only in this video segment but in all face-to-face contacts.

---

## Testimony on *The Busy Businessman*

**What was seen?**

**What was heard?**

**Slide 37.**

### J. Interview/Questioning Techniques

## Interview/Questioning Techniques

- Two things simultaneously
- Interrupting or distracting questions
- Unusual questions



**Slide 38.**

There are a number of techniques you can use to assess impairment while the driver is still behind the wheel. Most of these techniques apply the concept of divided attention. They require the driver to concentrate on two or more things at the same time. They include both questioning techniques and psychophysical (mind/body) tasks. These techniques are not as reliable as the Standardized Field Sobriety Tests but they can still be useful for obtaining evidence of impairment. **THESE TECHNIQUES DO NOT REPLACE THE SFSTs.**

The questions you ask and the way in which you ask them can constitute simple divided attention tasks. Three techniques are particularly pertinent: Asking for two things simultaneously; Asking interrupting or distracting questions; and, Asking unusual questions.

An example of the first technique, asking for two things simultaneously, is requesting the driver to produce both the driver's license and the vehicle registration. Possible evidence of impairment may be observed as the driver responds to this dual request.

---

Session 2 – Phase One and Two

## License and Registration

- Forgets to produce both documents
- Produces wrong documents
- Fails to see license, registration
- Fumbles/drops item
- Unable to retrieve documents using fingertips

DWI DETECTION & SFST REFRESHER

2-39

Slide 39.

Possible evidence of impairment that might be observed during the production of the license and registration. Be alert for a driver who:

- Forgets to produce both documents
- Produces documents other than the ones requested
- Fails to see the license, registration, or both while searching for them
- Fumbles or drops wallet, purse, license, or registration
- Is unable to retrieve documents using fingertips

---

## Questions that Divide Attention

- What day is it?
- Where are you coming from?
- Be alert for the driver who:
  - Ignores question
  - Forgets to resume search
  - Supplies grossly incorrect answer

Slide 40.

The second technique would be to ask questions that require the driver to divide attention between searching for the license or registration and answering a new question. While the driver is responding to the request for the license, registration, or both, you ask unrelated questions; “What day is it?” or “Where are you coming from?”

Possible evidence of impairment may be disclosed by the actions of the driver after this question has been posed. Be alert for the driver who:

- Ignores the question and concentrates only on the license or registration search
- Forgets to resume the search after answering the question
- Supplies a grossly incorrect answer to the question

## Unusual Questions

Slide 41.

The third technique, asking unusual questions, is employed after you have obtained the driver’s license and registration. Using this technique, you seek verifying information through unusual

questions. For example, while holding the driver's license, you might ask the driver, "What is your middle name?" "What is your zip code?" "What is the month and day of your birth?" etc.

There are many such questions which the driver normally would be able to answer easily, but which might prove difficult if the driver is impaired simply because they are unusual questions. Unusual questions require the driver to process information; this can be especially difficult when the driver does not expect to have to process information. For example, a driver may respond to the question about the middle name by giving a first name. In this case the driver misunderstood the unusual question and responded instead to a usual – but unasked – question.

---

Session 2 – Phase One and Two

## Medical Questions

- Physical conditions
- Physician's care
- Medical issues
- Medications



DWI DETECTION & SFST REFRESHER

2-42

**Slide 42.**

Officers should be alert for potential medical conditions that may mimic drug or alcohol impairment. Some questions may include:

- Do you have any physical disabilities?
- Are you sick or injured?
- Are you under the care of a doctor or dentist?
- Are you diabetic or epileptic?
  - If diabetic, ask if they take insulin.
- Are you on any medications?

---

## Additional Techniques Alphabet

**A B C D E F G  
H I J K L M N  
O P Q R S T  
U V W X Y Z**

Slide 43.

These techniques are optional and may help the officer with their decision to have the driver exit the vehicle. These techniques have not been scientifically validated by NHTSA but still can be useful for obtaining evidence of impairment.

The Alphabet technique requires the driver to recite a part of the alphabet. You instruct the driver to recite the alphabet beginning with a letter other than A and stopping at a letter other than Z. For example, you might say to a driver, "Recite the alphabet, beginning with the letter E as in Edward and stopping with the letter P as in Paul." This divides the driver's attention because the driver must concentrate to begin at an unusual starting point and recall where to stop.

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## Additional Techniques

### Count Down

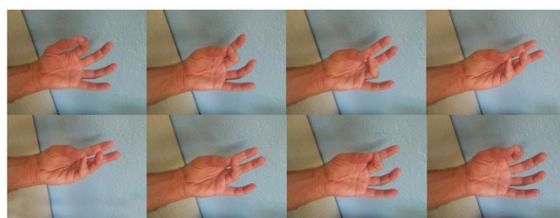
68 67 66 65 64 63  
 62 61 60 59 58 57  
 56 55 54 53...

Slide 44.

The Count Down technique requires the driver to count out loud 15 or more numbers in reverse sequence. For example, you might request a driver to, "Count out loud backwards, starting with the number 68 and ending with the number 53." This, too, divides attention because the driver must continuously concentrate to count backwards while trying to recall where to stop. **This technique should never be given using starting and stopping points ending in 0 or 5 because these numbers are too easy to recall. For example, do not request the driver count backwards from 65 to 50. Instead, ask the driver to count backwards from 68 to 53.**

## Additional Techniques

### Finger Count



Slide 45.

In the Finger Count technique, the driver is asked to touch the tip of the thumb to the tip of each finger on the same hand while simultaneously counting up one, two, three, four; then to reverse direction on the fingers while simultaneously counting down four, three, two, one.

In each instance, note whether and how well the driver is able to perform the divided attention task.

---

## K. Recognition and Description of Clues Associated with the Exit Sequence

Session 2 – Phase One and Two

### The Exit

**What do you see?**

- Angry, unusual reaction
- Can't follow instructions
- Can't open door
- Leaves car in gear
- "Climbs" out of car
- Leans against car
- Keeps hand on car



DWI DETECTION & SFST REFRESHER

2-46

**Slide 46.**

Your decision to instruct the driver to step from the vehicle usually is made after you have developed a suspicion the driver is impaired. Even if that suspicion may be very strong, the driver is usually not under arrest when you give the instruction. How the driver steps and walks from the vehicle and actions or behavior during the exit sequence may provide important evidence of impairment. Be alert to the driver who:

- Shows angry or unusual reactions
- Cannot follow instructions
- Cannot open the door
- Leaves the vehicle in gear
- Climbs out of vehicle
- Leans against vehicle
- Keeps hands on vehicle for balance

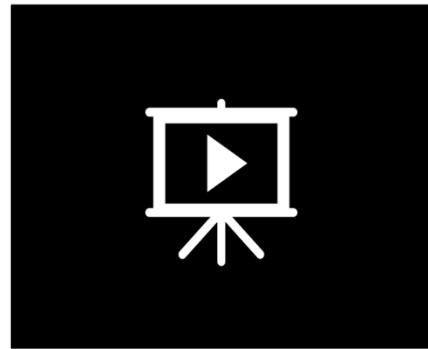
Proper face-to-face observation and interview of a driver requires the ability to recognize the sensory evidence of alcohol and/or other drug influence and the ability to describe that evidence clearly and convincingly. Developing these abilities takes practice.

The signal to stop creates a new situation to which the driver must devote some attention, i.e., emergency flashing lights, siren, etc., that demand and divert the subject's attention.

---



## The Exit



Slide 47.

Remember, you may instruct a driver to exit the vehicle as a means of ensuring your own safety. Safety considerations take precedence over all other considerations.

---



**Questions?**

Slide 48.

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# The Visual Detection of **DWI** Motorists



# The Visual Detection of **DWI Motorists**



U.S. Department of Transportation  
**National Highway Traffic Safety  
Administration**



DOT HS 808 677

## INTRODUCTION

More than a million people have died in traffic crashes in the United States since 1966, the year of the National Traffic and Motor Vehicle Safety Act, which led to the creation of the National Highway Traffic Safety Administration (NHTSA).

During the late 1960's and early 1970's more than 50,000 people lost their lives each year on our nation's streets, roads and highways. Traffic safety has improved considerably since that time: the annual death toll has declined substantially, even though the numbers of drivers, vehicles, and miles driven all have increased. When miles traveled are considered, the likelihood of being killed in traffic during the 1960's was three to four times what it is today.

The proportion of all crashes in which alcohol is involved also has declined. The declines in crash risk and the numbers of alcohol-involved crashes are attributable to several factors, including the effectiveness of public information and education programs, traffic safety legislation, a general aging of the population, and law enforcement efforts.

NHTSA research contributed to the improved condition, in part, by providing law enforcement officers with useful and scientifically valid information concerning the behaviors that are most predictive of impairment. Continued enforcement of Driving While Intoxicated (DWI) laws will be a key to saving lives in the future. For this reason, NHTSA sponsored research leading to the development of a new DWI detection guide and training materials, including a new training video. Many things have changed since 1979, but like the original training materials, the new detection guide describes a set of behaviors that can be used by officers to detect motorists who are likely to be driving while impaired.

Building upon the previous NHTSA study, researchers interviewed officers from across the United States and developed a list of more than 100 driving cues that have been found to predict blood alcohol concentrations (BAC) of 0.08 percent or greater. The list was reduced to 24 cues during 3 field studies involving hundreds of officers and more than 12,000 enforcement stops. The driving behaviors identified by the officers are presented in the following four categories:

- 1) Problems in maintaining proper lane position**
- 2) Speed and braking problems**
- 3) Vigilance problems**
- 4) Judgment problems**

The cues presented in these categories predict that a driver is DWI at least 35 percent of the time. For example, if you observe a driver to be weaving or weaving across lane lines, the probability of DWI is more than .50 or 50 percent. However, if you observe either of the weaving cues and any other cue listed in this booklet, the probability of DWI jumps to at least .65 or 65 percent. Observing any two cues other than weaving indicates a probability of DWI of at least 50 percent. Some cues, such as swerving, accelerating for no reason, and driving on other than the designated roadway, have single-cue probabilities greater than 70 percent. Generally, the probability of DWI increases substantially when a driver exhibits more than one of the cues.

This booklet contains:

- The DWI Detection Guide**
- A summary of the research that led to the guide**
- Explanations of the 24 driving cues**
- A description of post-stop cues that are predictive of DWI**

The research suggests that these training materials will be helpful to officers in:

- Detecting impaired motorists**
- Articulating observed behaviors on arrest reports**
- Supporting officers' expert testimony**

## DWI DETECTION GUIDE

Weaving plus any other cue:  $p =$  at least .65

Any two cues:  $p =$  at least .50

### Problems Maintaining Proper Lane Position $p = .50-.75$

- Weaving
- Weaving across lane lines
- Straddling a lane line
- Swerving
- Turning with a wide radius
- Drifting
- Almost striking a vehicle or other object

### Speed and Braking Problems $p = .45-.70$

- Stopping problems (too far, too short, or too jerky)
- Accelerating or decelerating for no apparent reason
- Varying speed
- Slow speed (10+ mph under limit)

### Vigilance Problems $p = .55-.65$

- Driving in opposing lanes or wrong way on one-way
- Slow response to traffic signals
- Slow or failure to respond to officer's signals
- Stopping in lane for no apparent reason
- Driving without headlights at night
- Failure to signal or signal inconsistent with action

### Judgment Problems $p = .35-.90$

- Following too closely
- Improper or unsafe lane change
- Illegal or improper turn (too fast, jerky, sharp, etc.)
- Driving on other than the designated roadway
- Stopping inappropriately in response to officer
- Inappropriate or unusual behavior (throwing, arguing, etc.)
- Appearing to be impaired

### Post Stop Cues $p \geq .85$

- Difficulty with motor vehicle controls
- Difficulty exiting the vehicle
- Fumbling with driver's license or registration
- Repeating questions or comments
- Swaying, unsteady, or balance problems
- Leaning on the vehicle or other object
- Slurred speech
- Slow to respond to officer or officer must repeat
- Providing incorrect information, changes answers
- Odor of alcoholic beverage from the driver

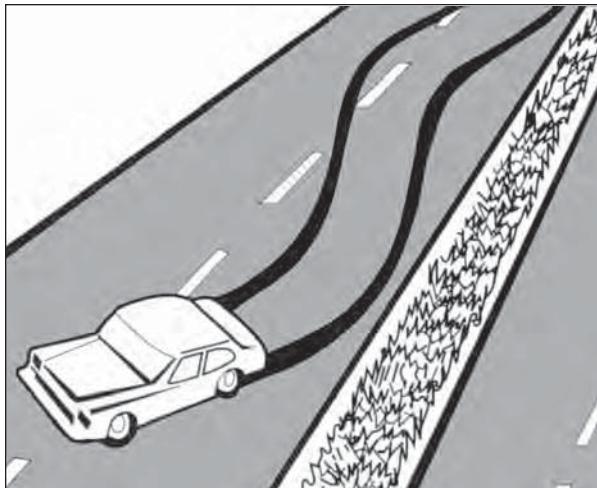
$p \geq .50$  when combined with any other cue:

- Driving without headlights at night
- Failure to signal or signal inconsistent with action

The probability of detecting DWI by random traffic enforcement stops at night has been found to be about 3 percent (.03).

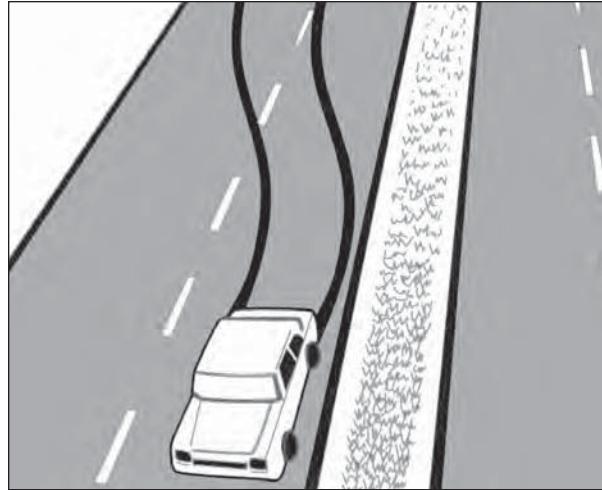
## PROBLEMS IN MAINTAINING PROPER LANE POSITION

Maintaining proper lane position can be a difficult task for an impaired driver. For example, we have all, at one time, seen vehicles **weaving**. Weaving is when the vehicle alternately moves toward one side of the lane and then the other. The pattern of lateral movement can be fairly regular, as one steering correction is closely followed by another. In extreme cases, the vehicle's wheels even **cross the lane lines** before a correction is made. You might even observe a vehicle **straddling a center or lane line**. That is, the vehicle is moving straight ahead with either the right or left tires on the wrong side of the lane line or markers.



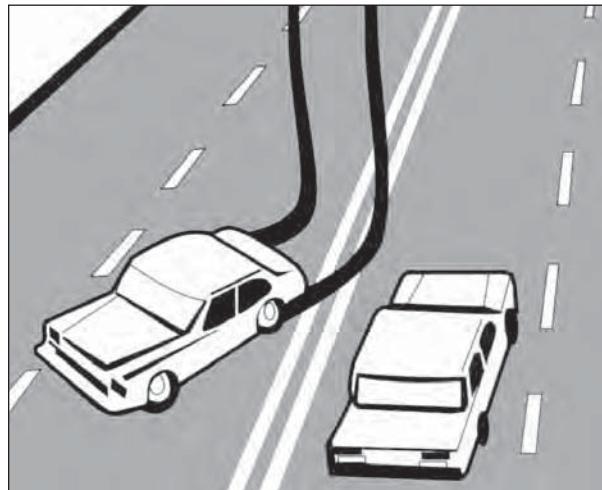
Weaving

**Drifting** is when a vehicle is moving in a generally straight line, but at a slight angle to the lane. The driver might correct his or her course as the vehicle approaches a lane line or other boundary or fail to correct until after a boundary has been crossed. In extreme cases, the driver fails to correct in time to avoid a collision.



**Drifting**

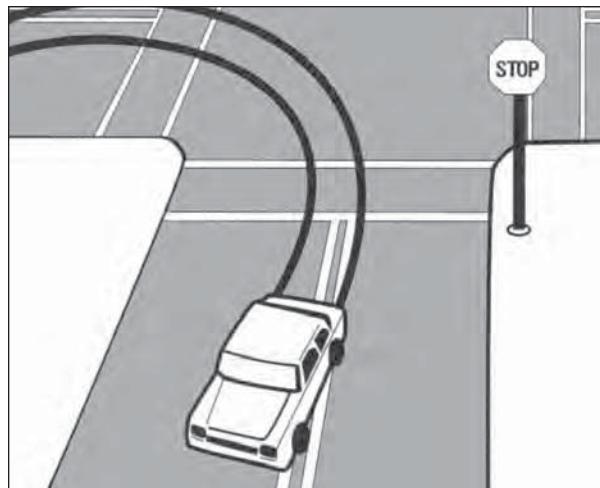
Course corrections can be gradual or abrupt. For example, you might observe a vehicle to **swerve**, making an abrupt turn away from a generally straight course, when a driver realizes that he or she has drifted out of proper lane position or to avoid a previously unnoticed hazard.



**Swerving**

A related DWI cue is **almost striking a vehicle or other object**. You might observe a vehicle, either at slow speeds or moving with traffic, to pass unusually close to a sign, barrier, building, or other object. This cue also includes almost striking another vehicle, either moving or parked, and causing another vehicle to maneuver to avoid a collision.

**Turning with a wide radius or drifting during a curve** is the final cue in this category of driver behaviors. A vehicle appears to drift to the outside of the lane or into another lane through the curve or while turning a corner. Watch for this cue, and stop the driver when you see it. Many alcohol-involved crashes are caused by an expanding turn radius or drifting out of lane position during a curve.



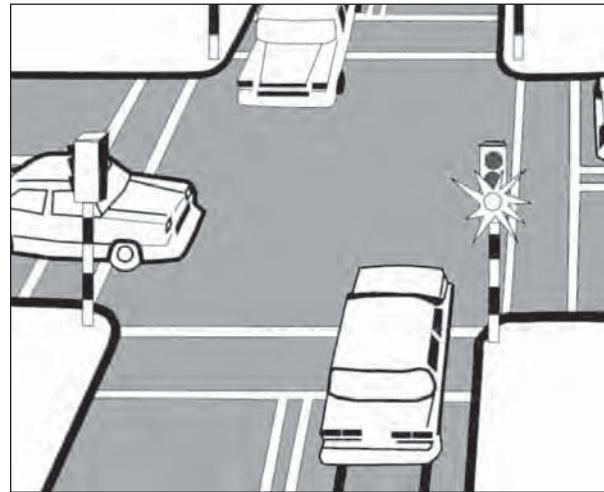
Turning With a Wide Radius

## SPEED AND BRAKING PROBLEMS

The research showed that braking properly can be a difficult task for an impaired driver. For example, there is a good chance the driver is DWI if you observe any type of **stopping problem**.

Stopping problems include:

- **Stopping too far from a curb or at an inappropriate angle**
- **Stopping too short or beyond a limit line**
- **Jerky or abrupt stops**



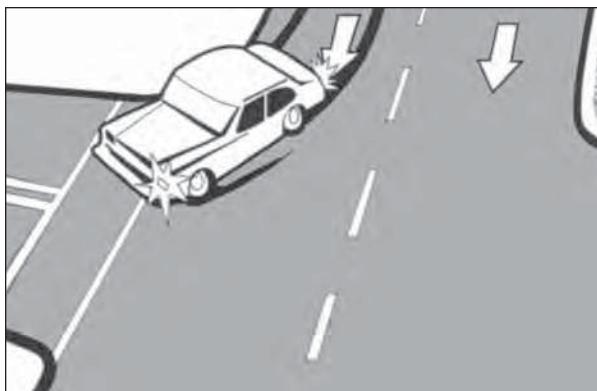
Stopping Beyond a Limit Line

Impaired drivers also can experience difficulty maintaining an appropriate speed. There is a good chance the driver is DWI if you observe a vehicle to:

- **Accelerate or decelerate rapidly for no apparent reason**
- **Vary its speed, alternating between speeding up and slowing down**
- **Be driven at a speed that is 10 miles per hour (mph) or more under the limit**

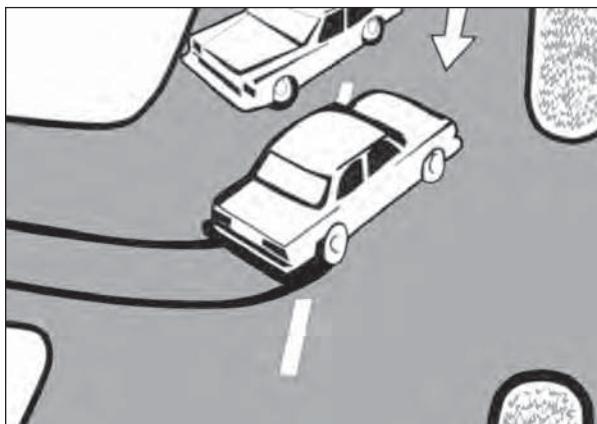
## VIGILANCE PROBLEMS

Vigilance concerns a person's ability to pay attention to a task or notice changes in surroundings. A driver whose vigilance has been impaired by alcohol might forget to turn on his or her headlights when required. Similarly, impaired drivers often forget to signal a turn or lane change, or their signal is inconsistent with their maneuver, for example, signaling left but turning right.



### Signaling Inconsistent With Driving Actions

Alcohol-impaired vigilance also results in motorists driving into opposing or crossing traffic and turning in front of oncoming vehicles with insufficient headway.



### Driving Into Opposing or Crossing Traffic

Driving is a complex task that requires accurate information about surrounding traffic conditions. Failing to yield the right of way and driving the wrong way on a one way street are dangerous examples of vigilance problems.

A driver whose vigilance has been impaired by alcohol also might respond more slowly than normal to a change in a traffic signal. For example, the vehicle might remain stopped for an unusually long period of time after the signal has turned green. Similarly, an impaired driver might be unusually slow to respond to an officer's lights, siren, or hand signals.

The most extreme DWI cue in the category of vigilance problems is to find a vehicle stopped in a lane for no apparent reason. Sometimes when you observe this behavior the driver will be just lost or confused, but more than half of the time the driver will be DWI—maybe even asleep at the wheel.

#### JUDGMENT PROBLEMS

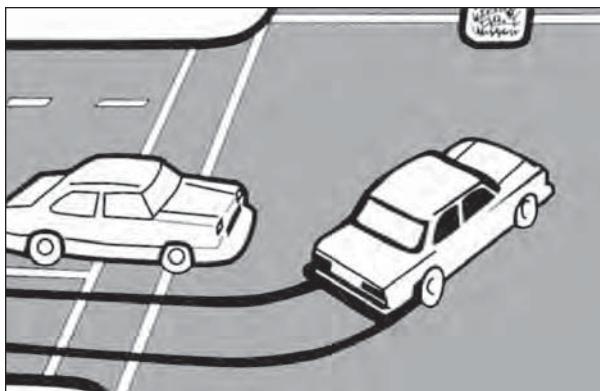
Operating a motor vehicle requires continuous decision making by the driver. Unfortunately, judgment abilities can be affected by even small amounts of alcohol. For example, alcohol-impaired judgment can cause a driver to follow another vehicle too closely, providing an unsafe stopping distance.

Alcohol-impaired judgment also can result in a driver taking risks or endangering others. If you observe a vehicle to make improper or unsafe lane changes, either frequently or abruptly or with apparent disregard for other vehicles, there is a good chance the driver's judgment has been impaired by alcohol.

Similarly, impaired judgment can cause a driver to turn improperly. For example, misjudgments about speed and the roadway can cause a driver

to take a turn too fast or to make sudden corrections during the maneuver. These corrections can appear to the observer as jerky or sharp vehicle movements during the turn.

Alcohol-impaired judgment can affect the full range of driver behaviors. For example, the research found that impaired drivers are less inhibited about making illegal turns than unimpaired drivers.

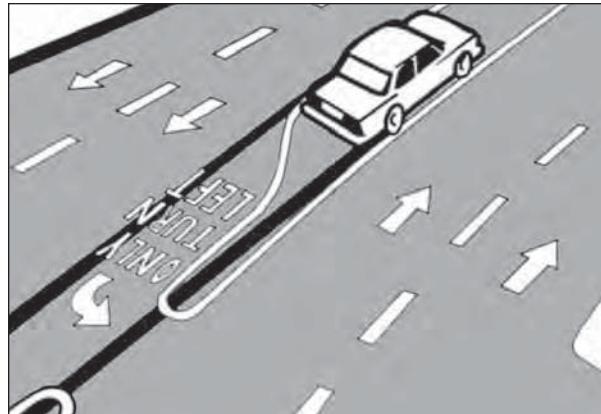


**Turning Illegally**

Driving on other than the designated roadway is another cue exhibited by alcohol-impaired drivers. Examples include driving at the edge of the roadway, on the shoulder, off the roadway entirely, and straight through turn-only lanes.

In some cases, impaired drivers stop inappropriately in response to an officer, either abruptly as if they had been startled or in an illegal or dangerous manner.

In fact, the research has shown that there is a good chance a driver is DWI if you observe the person exhibit **any inappropriate or unusual behavior**. Unusual behavior includes throwing something from the vehicle, drinking in the vehicle, urinating at the roadside, arguing with another motorist, or otherwise being disorderly. If you observe inappropriate or unusual behavior, there is a good probability that the driver is DWI.



Driving on Other Than the Designated Roadway

The final cue is actually one or more of a set of indicators related to the personal behavior or appearance of a driver. These indicators include, gripping the steering wheel tightly, driving with one's face close to the windshield, slouching in the seat, and staring straight ahead with eyes fixed. Some officers routinely scrutinize the faces of drivers in oncoming traffic, looking for the indicators of impairment. If you observe a driver who **appears to be impaired**, the research showed that there is an excellent probability that you are correct in your judgment.



Appearing To Be Impaired

## SUMMARY

To summarize, the DWI cues related to **problems in maintaining proper lane position** include:

- **Weaving**
- **Weaving across lane lines**
- **Straddling a lane line**
- **Drifting**
- **Swerving**
- **Almost striking a vehicle or other object**
- **Turning with a wide radius or drifting during a curve**

The DWI cues related to **speed and braking problems** include:

- **Stopping problems (too far, too short, too jerky)**
- **Accelerating for no reason**
- **Varying speed**
- **Slow speed**

The DWI cues related to **vigilance problems** include:

- **Driving without headlights at night**
- **Failure to signal a turn or lane change or signaling inconsistently with actions**
- **Driving in opposing lanes or the wrong way on a one-way street**
- **Slow response to traffic signals**
- **Slow or failure to respond to officer's signals**
- **Stopping in the lane for no apparent reason**

The DWI cues related to **judgment problems** include:

- **Following too closely**
- **Improper or unsafe lane change**
- **Illegal or improper turn (too fast, jerky, sharp, etc.)**
- **Driving on other than the designated roadway**
- **Stopping inappropriately in response to an officer**
- **Inappropriate or unusual behavior**
- **Appearing to be impaired**

## POST-STOP CUES

In addition to the driving cues, the following post-stop cues have been found to be excellent predictors of DWI.

- **Difficulty with motor vehicle controls**
- **Difficulty exiting the vehicle**
- **Fumbling with driver's license or registration**
- **Repeating questions or comments**
- **Swaying, unsteady, or balance problems**
- **Leaning on the vehicle or other object**
- **Slurred speech**
- **Slow to respond to officer or officer must repeat questions**
- **Providing incorrect information or changes answers**
- **Odor of alcoholic beverage from the driver**

DOT HS 808 677  
March 2010

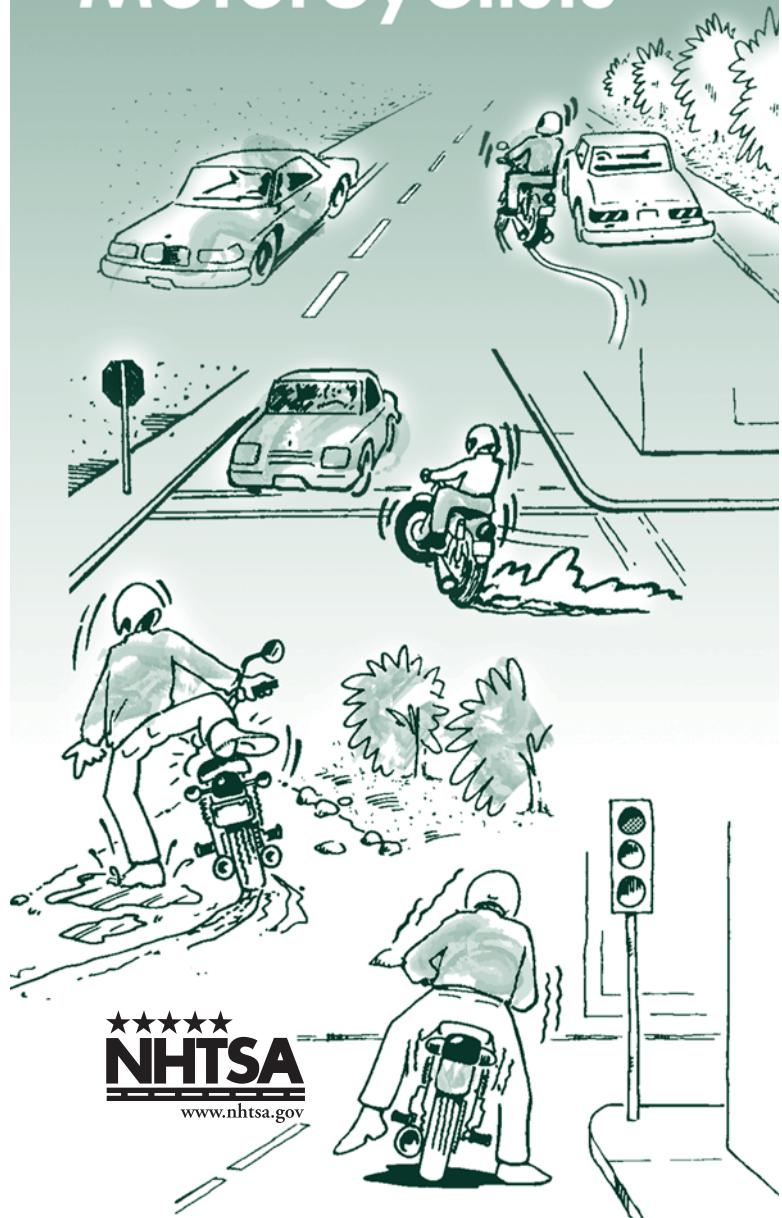


U.S. Department of Transportation  
**National Highway Traffic Safety  
Administration**



National Highway Traffic Safety Administration

# The Detection of DWI Motorcyclists



\*\*\*\*\*  
**NHTSA**

[www.nhtsa.gov](http://www.nhtsa.gov)

## **Motorcycle DWI Detection Guide**

NHTSA has found that the following cues predicted impaired motorcycle operation.

### **Excellent Cues (50% or greater probability)**

- Drifting during turn or curve
- Trouble with dismount
- Trouble with balance at a stop
- Turning problems (e.g., unsteady, sudden corrections, late braking, improper lean angle)
- Inattentive to surroundings
- Inappropriate or unusual behavior (e.g., carrying or dropping object, urinating at roadside, disorderly conduct, etc.)
- Weaving

### **Good Cues (30 to 50% probability)**

- Erratic movements while going straight
- Operating without lights at night
- Recklessness
- Following too closely
- Running stop light or sign
- Evasion
- Wrong way

## The Detection of DWI Motorcyclists

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### Introduction

The National Highway Traffic Safety Administration (NHTSA) estimated that in 2011, about 29 percent of motorcycle operators involved in fatal crashes had a blood alcohol concentration (BAC) of .08 grams per deciliter (g/dL) or higher.

Clearly, enforcing impaired driving laws is a key to reducing the number of alcohol-related motorcyclist fatalities. *But which cues should be used to detect impaired motorcyclists?*

NHTSA sponsored research to develop a set of behavioral cues to be used by law enforcement personnel to detect motorcyclists who are operating their vehicles while intoxicated. The researchers began by interviewing experienced patrol officers from across the country to determine what behavioral cues have been used to detect impaired motorcyclists. A few, primarily motorcycle officers, suggested cues that reflected considerable understanding of the mental and physical requirements of riding a motorcycle. Others believed the cues to be identical to those used to detect impaired drivers. But some officers, even those with many years of experience, reported they believe there are no cues that can be used to distinguish DWI from unimpaired motorcycle operation.

In addition to interviewing law enforcement personnel, the research team developed a database of 1,000 motorcycle DWI arrest reports. The research team focused on officers' narratives and motorcyclists' behaviors that motivated the stops, and correlated those behaviors with BAC. Analysis of the interviews and arrest report data resulted in an inventory of about 100 cues that have been observed by officers in relation to impaired operation of motorcycles.

The researchers, working closely with law enforcement personnel, conducted two major field studies involving more than 50 sites throughout the United

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States. Officers recorded information about every enforcement stop they made of a motorcyclist. Those field studies permitted the researchers to identify the most effective cues and to calculate the probabilities those cues were predictive of DWI. This brochure highlights the results of that research.

Fourteen cues were identified that best discriminate between DWI and unimpaired motorcycle operation. These cues have been labeled as "Excellent Cues" and "Good Cues," based on the study's results. The *excellent* cues predicted impaired motorcycle operation at least 50 percent of the time. The *good* cues predicted impaired motorcycle operation 30 to 49 percent of the time. The special coordination and balance requirements of riding a two-wheeled vehicle provided most of the behaviors in the "Excellent" category of cues.

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## Important Information

Law enforcement officers across the United States have used the cues described in this brochure to help detect impaired motorcycle operators. The cues can be used at any hour of the day and night, and they apply to all two-wheeled motor vehicles.

The cues described and illustrated in this brochure (and on a training video) are the behaviors that are most likely to discriminate between impaired and normal operation of a motorcycle. Cases that involve speeding, however, require additional clarification. Motorcyclists stopped for excessive speed are likely to be driving while intoxicated only about 10 percent of the time (i.e., 10 times out of 100 stops for speeding). But because motorcyclists tend to travel in excess of posted speed limits, speeding is associated with a large portion of all motorcycle DWI arrests. In other words, while only a small proportion of speeding motorcyclists are likely to be considered DWI, the large number of motorcyclists who are speeding results in a large number of DWIs, despite the relatively small probability.

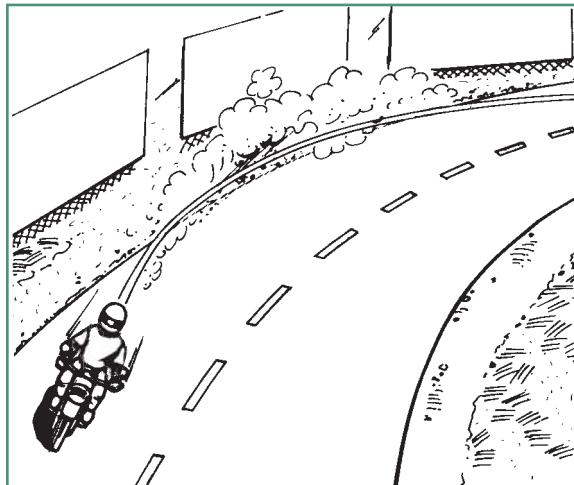
This research will be helpful to officers in:

- Detecting impaired motorcyclists
- Articulating observed behaviors on arrest reports
- Supporting officer's expert testimony

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## Drifting During Turn or Curve

Earlier studies have shown that the most common cause of single-vehicle, fatal motorcycle crashes is the failure to negotiate curves, with the motorcycle continuing in a straight line until it strikes a stationary object. This type of crash is usually caused by alcohol-impaired balance and coordination. In less extreme cases, the motorcycle's turn radius expands during the maneuver. The motorcycle appears to drift outside of the lane or into another lane, through the curve, or while turning a corner. If you see a motorcycle drifting during a turn or curve, do the rider a favor and pull him or her over – our study showed there is a better than average possibility that the motorcyclist is a DWI offender.



## Trouble With Dismount

Parking and dismounting a motorcycle can be a useful field sobriety test. The motorcyclist must turn off the engine and locate and deploy the kick-stand. The operator must then balance his or her weight on one foot while swinging the other foot over the seat to dismount. But first, the

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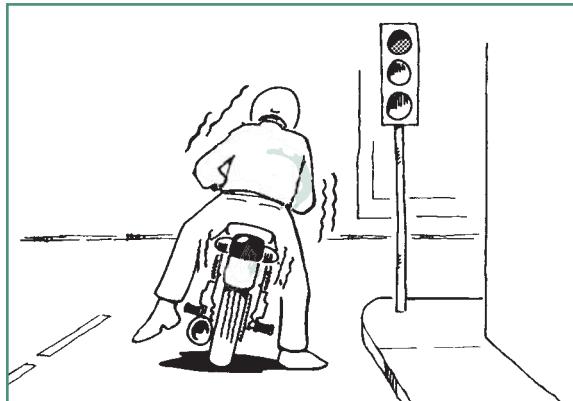
operator must decide upon a safe place to stop the bike. Problems with any step in this sequence can be evidence of alcohol impairment.



Not every motorcyclist you observe experiencing some difficulty with a dismount is riding under the influence, but study results indicated that more than 50 percent of them were DWI offenders. In other words, having a problem dismounting is a reliable cue to DWI.

### Trouble With Balance at Stop

One typical practice for motorcycle riders at a stop is for the motorcyclist to place one foot on the ground to keep the bike upright, while leaving the other foot

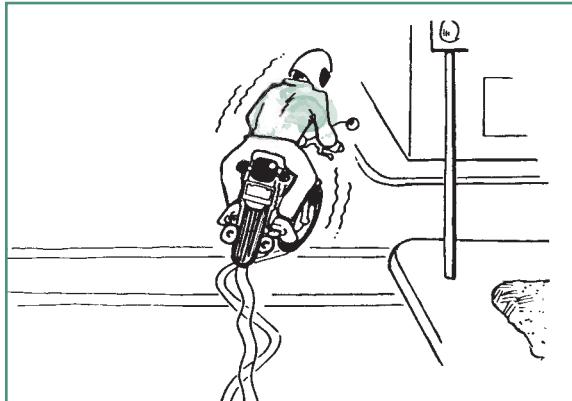


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covering the brake pedal. Some riders favor placing both feet on the ground for stability. Riders whose balance has been impaired by alcohol often have difficulty with these tasks. They might be observed as having shifted their weight from side-to-side, that is, from one foot to another, to maintain balance at a stop. From a block away, an officer might notice a single taillight moving from side to side in a gentle rocking motion. If you observe a motorcyclist having trouble with balance at a stop, there is a better than average chance that the operator is a DWI offender.

## Turning Problems

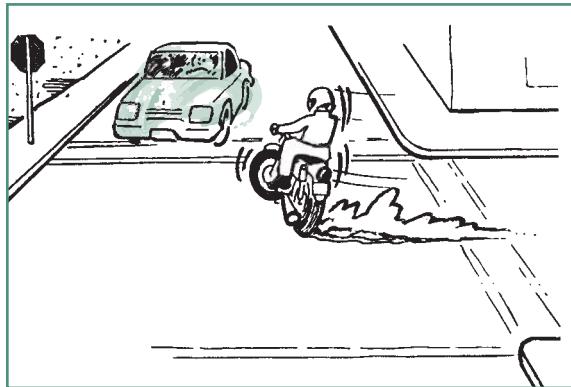
The research also identified four turning problems that indicate rider impairment:



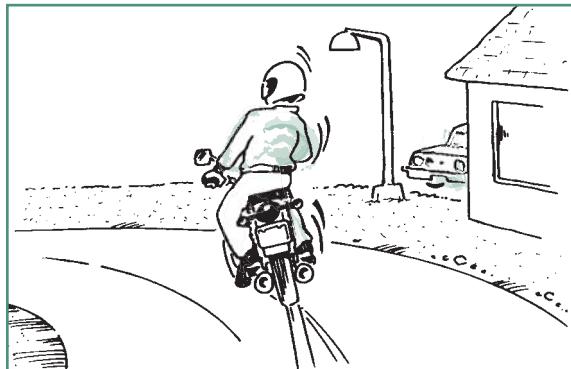
- **Unsteady During Turn or Curve.** The gyroscopic effects of a motorcycle's wheels tend to keep a motorcycle "on track" as long as speed is maintained. As a motorcycle's speed decreases, the demands placed on the operator's balancing capabilities increases. As a result, an officer might observe a motorcycle's front wheels or handlebars wobbling as an impaired rider attempts to maintain balance at slow speeds or during a turn.

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■ **Late Braking During Turn.** The next turning problem is “late braking during a turn or on a curve.” A motorcyclist normally brakes prior to entering a turn or curve, so the motorcycle can accelerate through the maneuver for maximum control. An impaired motorcyclist might misjudge the speed or distance to the corner or curve, requiring an application of the brakes during the maneuver.

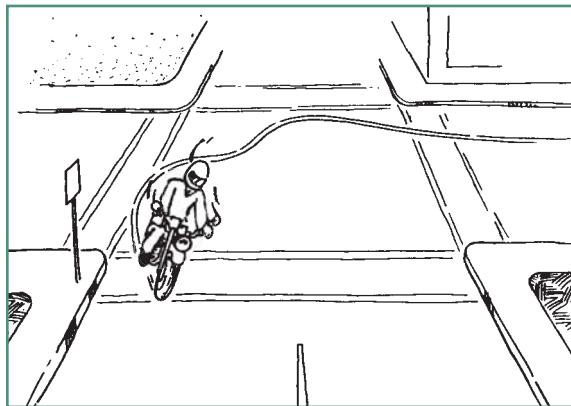


■ **Improper Lean Angle During Turn.** A third turning problem occurs when a motorcyclist normally negotiates a turn or curve by leaning into the turn. When a rider's balance or speed decision-making is impaired, the rider frequently attempts to sit upright through the maneuver. As a result, a trained observer can detect an “improper lean angle.”



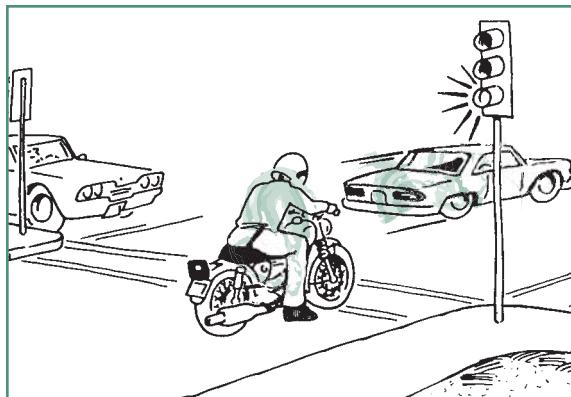
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■ **Erratic Movements During Turn.** The fourth turning problem is “erratic movements.” These are defined as an inconsistent action or a sudden correction of a motorcycle maneuver during a turn or curve that can also indicate impaired driving. If you observe a motorcyclist who is unsteady during a turn or curve, brakes late, assumes an improper lean angle, or makes erratic movements during a turn or curve, there is a better-than-average chance that the motorcyclist is driving while impaired.



### Inattentive to Surroundings

Vigilance concerns people’s ability to pay attention to a task or notice changes in their surroundings. A motorcyclist whose vigilance has been impaired by



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alcohol consumption might fail to notice that the traffic light has changed from red to green.

A vigilance problem also is evident when motorcyclists are inattentive to their surroundings or are seemingly unconcerned with detection by law enforcement. For example, there is cause for suspicion of DWI when a motorcyclist fails to periodically scan the area around the bike when in traffic, a wise defensive riding measure to guard against potential encroachment by other vehicles. There is further evidence of impairment if a motorcyclist fails to respond to an officer's emergency lights or hand signals.

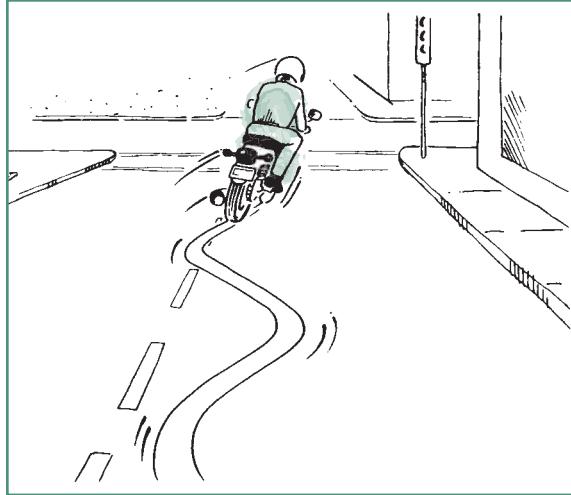
If you observe a motorcyclist to be inattentive to the surroundings, there is a better than average chance that the motorcyclist is a DWI violator.

## **Inappropriate or Unusual Behavior**

There is a category of cues referred to as "inappropriate or unusual behavior." This category of cues includes behaviors such as operating a motorcycle while holding an object in one hand or under an arm, carrying an open container of alcohol, dropping something from a moving motorcycle, urinating at the roadside, arguing with another motorist, or otherwise being disorderly. If you observe inappropriate or unusual behavior by a motorcyclist, there is a better than average chance that the motorcyclist is a DWI offender.

## **Weaving**

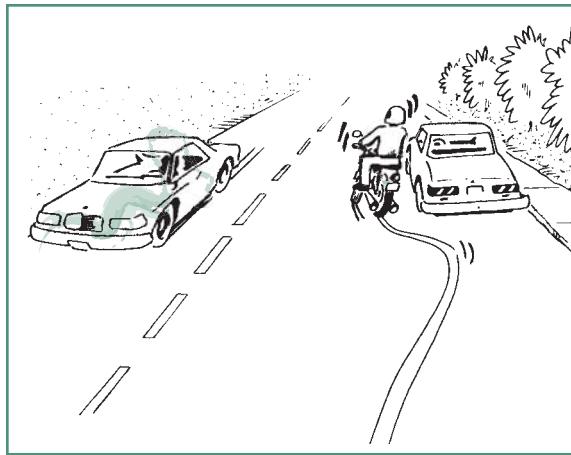
You are probably familiar with weaving as a predictor of DWI. If you see an automobile weaving there is a better than average chance the driver has exceeded the legal alcohol limits, but if you observe a motorcycle to be weaving, the probability of DWI is



even greater – weaving is an excellent cue. Weaving involves excessive movement within a lane or across lane lines, but does not include movements necessary to avoid road hazards.

### Erratic Movements While Going Straight

If you observe a motorcyclist making erratic movements or sudden corrections while attempting to ride in a straight line, study results indicated there is

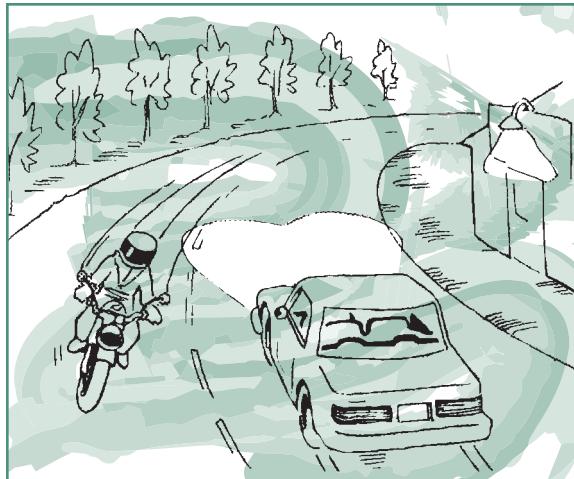


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a good probability that the rider is a DWI violator. In fact, during the study erratic movements while going straight were observed 30 to 49 percent of the time in relation to impaired driving.

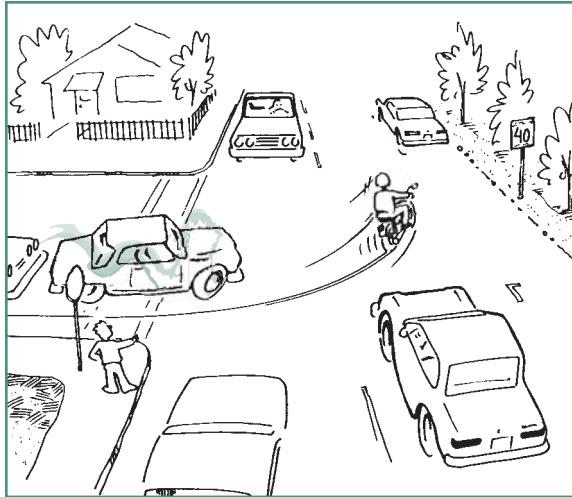
### Operating without Lights at Night

Operating a motorcycle without lights at night is dangerous and can be another indicator of operator impairment. Study results showed that if you detect a motorcyclist riding at night without lights, there is a good chance that the operator is a DWI offender.



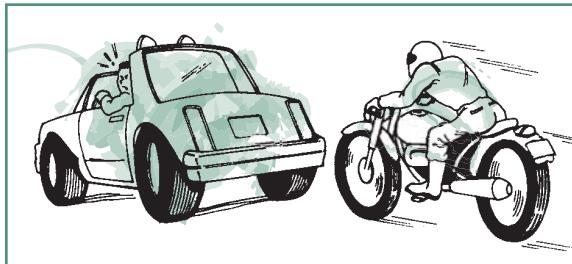
### Recklessness

Motorcyclists tend to ride faster than automobiles so speeding is not necessarily a good predictor of DWI for motorcyclists. On the other hand, recklessness or riding too fast for the conditions was found to be a good indicator of operator impairment.



### Following Too Closely

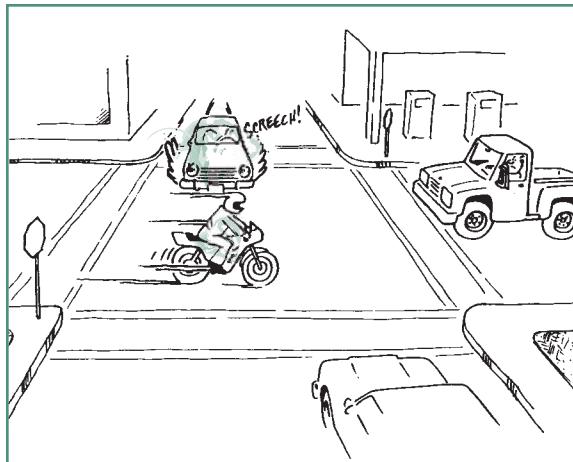
Following too closely, which is an unsafe following distance, is another indication of impaired operator judgment. During the study, this cue was found to be a good predictor of DWI by motorcycle riders.



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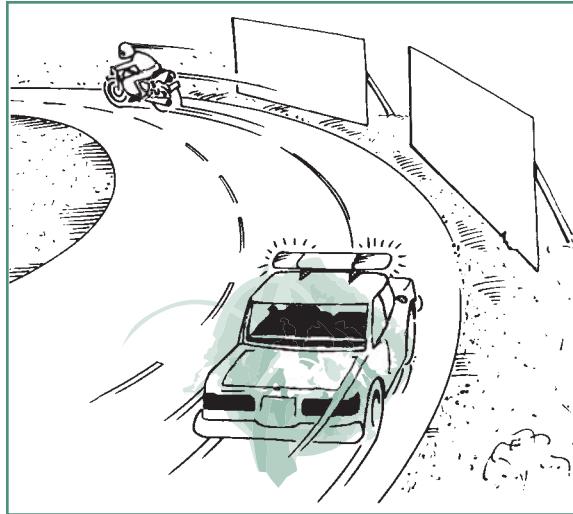
## Running Stop Light or Sign

Failure to stop at a red light or stop sign can indicate either impaired vigilance capabilities (i.e., did not see the stop light or sign), or impaired judgment (i.e., decided not to stop). Whatever the form of impairment, if you observe a motorcyclist running a stop light or sign, there is a good chance that he or she is a DWI offender.



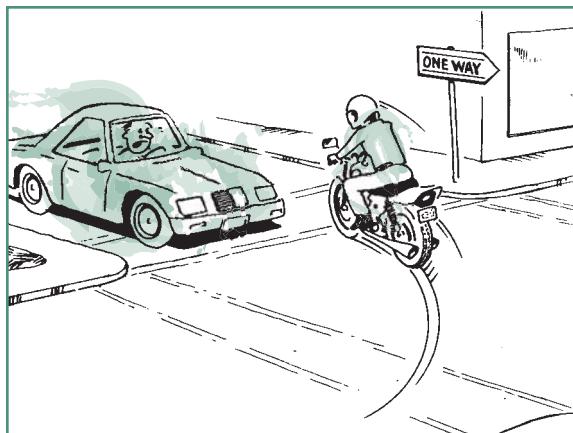
## Evasion

Evasion, or fleeing an officer, is a recurring problem. If a motorcyclist attempts to evade an officer's enforcement stop, study results indicate there is a good chance he is a DWI violator as well.



### Wrong Way

Obviously, riding into opposing traffic is dangerous. Study results showed that when you find a motorcycle going the wrong way in traffic, there is a good chance that the operator is under the influence. This includes going the wrong way on a one-way street, and crossing a center divider line to ride into opposing traffic.



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## Motorcycle DWI Detection Guide

NHTSA has found that the following cues predicted impaired motorcycle operation.

### Excellent Cues (50% or greater probability)

- Drifting during turn or curve
- Trouble with dismount
- Trouble with balance at a stop
- Turning problems (e.g., unsteady, sudden corrections, late braking, improper lean angle)
- Inattentive to surroundings
- Inappropriate or unusual behavior (e.g., carrying or dropping object, urinating at roadside, disorderly conduct, etc.)
- Weaving

### Good Cues (30 to 50% probability)

- Erratic movements while going straight
- Operating without lights at night
- Recklessness
- Following too closely
- Running stop light or sign
- Evasion
- Wrong way

This brochure and related training materials are based on NHTSA Technical Report DOT HS 807 839, The Detection of DWI Motorcyclists, which is available upon request from NHTSA's Safety Countermeasures Division (NTI-121), 1200 New Jersey Avenue SE, Washington, DC 20590.

DOT HS 807 856  
revised March 2013



U.S. Department  
of Transportation  
**National Highway  
Traffic Safety  
Administration**



9396a-102914-v3

# 3 SFST Refresher

## Standardized Field Sobriety Testing Review

### LEARNING OBJECTIVES

- Understand the results of selected Standardized Field Sobriety Testing (SFST) validation studies
- Define and describe the SFSTs
- Define nystagmus and distinguish between the different types
- Recognize, document, and articulate the indicators and clues of the three SFSTs
- Identify the limitations of the three SFSTs

### CONTENTS

A. SFST Validation Studies .....	3
B. Overview of Selected Types of Nystagmus.....	8
C. Psychophysical Field Sobriety Tests.....	30

### LEARNING ACTIVITIES

- Instructor-Led Demonstration
- Participant Practice Session
- Demonstration

## Learning Objectives

- Understand results of selected SFST validation studies
- Define, describe, properly administer SFSTs
- Define nystagmus and distinguish between different types



Slide 2.

## Learning Objectives

- Recognize, document, and articulate indicators and clues of the three SFSTs
- Identify limitations of the three SFSTs



Slide 3.

## A. SFST Validation Studies

Session 3 – Standardized Field Sobriety Testing Review

### Overview: Development and Validation

- NHTSA research began in 1975 in California
- Three final reports published
  - California: 1977 (lab study only)
  - California: 1981 (lab/field study)
  - Maryland, Washington, DC, Virginia, North Carolina: 1983 (field study only)

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Slide 4.

For many years, law enforcement officers have utilized field sobriety tests to determine a driver's impairment due to alcohol influence. The performance of the driver 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 valid SFSTs.

The National Highway Traffic Safety Administration (NHTSA) analyzed the original SCRI research laboratory test data and found HGN, by itself, was 77% accurate, WAT, by itself, was 68% accurate, and OLS, by itself, was 65% accurate.

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### SFST Field Validation Studies



DWI DETECTION & SFST REFRESHER

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Slide 5.

Three SFST validation studies were undertaken between 1995 and 1998. These were Colorado – 1995, Florida – 1997, and San Diego – 1998.

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## “Correct” and “Incorrect” Arrest Decisions



DWI DETECTION & SFST REFRESHER

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Slide 6.

In order to understand the results of the research studies discussed in this course, it is important to define what is meant by a correct arrest decision. A correct arrest decision is made when an officer, after completing the third phase of the detection process, decides to arrest a subject and that subject tested above the per se limit for BAC, or the officer decides to release a subject who is below the per se limit for BAC. The remaining subjects, incorrect arrest decisions, fall into two other categories. Members of the first group were not arrested but tested above the per se limit for BAC. The Colorado Study noted a number (approximately 33%) of these individuals were considered alcohol tolerant and performed well on the SFSTs even though their BACs were above the per se limit. Although these release decisions were recorded as errors based on the procedures outlined in the study, this non-arrest decision ultimately benefited the driver.

For purposes of this study, the subjects who were arrested, but their BAC was below the per se limit, were also considered incorrect arrests. Many States stipulate in their statute a driver is considered DWI if they are either above the per se limit for BAC or are impaired. Even though these arrests are legally justifiable according to an individual State’s statute, these decisions are recorded as errors in the research based on the procedures outlined in the study.

Each of these studies have shown the SFSTs are scientifically validated and are a reliable method for distinguishing between impaired and unimpaired drivers. It is important for the officer who is trained in SFST to prepare themselves to understand and explain these statistics in layman terms in order to effectively articulate them to a jury in a courtroom. Remember, if you do not know the answer to a defense question you can say, “I DON’T KNOW.”

## Colorado Field Validation Study of SFST

- First full field validation study using SFST-experienced law enforcement
- 86% correct arrest/release decision based on three SFSTs
- 93% of those arrested had a BAC of 0.05 or higher

### Slide 7.

The Colorado SFST Validation Study was the first full field study that utilized law enforcement personnel experienced in the use of SFSTs. The initial 1977 study utilized only a few experienced officers in DWI enforcement in both a laboratory setting and field setting. These officers received approximately four hours of training in field sobriety testing prior to the laboratory study. In the Colorado study, correct arrest/release decisions were 86% accurate based on the three SFSTs (HGN, WAT, OLS) and 93% of arrested drivers had a BAC of 0.05 or higher. These results, by officers who were trained in the SFST curriculum, were higher than the initial 1977 study results.

**Source:**

Burns, M., & Anderson, E. (1995, November). *A Colorado Validation Study of the Standardized Field Sobriety Test (SFST) Battery*. Colorado Department of Transportation.

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## Florida Field Validation Study of SFST

- 95% correct arrest decision based on three SFSTs
- Validated SFSTs at 0.08 BAC and above

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**Slide 8.**

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. Correct decisions to arrest were made 95% of the time based on the three SFSTs (HGN, WAT, OLS). This was the second SFST field validation study undertaken. This study was the first study conducted at the lower BAC limit of 0.08.

**Source:**

Burns, M., & Dioquino, T. (1997). *A Florida Validation Study of the Standardized Field Sobriety Test (SFST) Battery*. National Highway Traffic Safety Administration.

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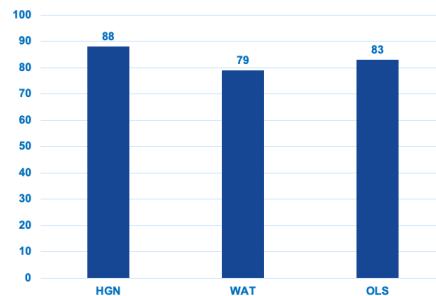
## San Diego Field Validation Study of SFST

- 91% correct-arrest decision for 0.08 BAC and above using three SFSTs
- HGN is still most reliable of three SFSTs and supports arrest decisions at 0.08 BAC

Slide 9.

The San Diego SFST validation field study was undertaken because of the nationwide trend towards lowering the BAC limits to 0.08. The question to be answered was “Do SFSTs discriminate at BACs below 0.10%?” The study examined the validity of SFSTs for both .08% and .04%. Correct arrest decisions were made 91% of the time based on the three SFSTs (HGN, WAT, OLS) at the 0.08 level and above. This is the most current research used to describe the accuracy of the SFSTs.

## San Diego Field Validation Study of SFST



Slide 10.

- HGN was 88% accurate
- WAT was 79% accurate
- OLS was 83% accurate

The results of this study provide clear evidence of the validity of the three-tests to support arrest decisions at above or below 0.08. It strongly suggests the SFSTs also identify BACs at 0.04 and above.

Results: Three SFST 1990's Field Studies	
Study	% Correct
Colorado	86% Arrest/Release Decisions
Florida	95% Arrest Decisions
San Diego	91% Arrest Decisions

It is necessary to emphasize this validation applies only when the tests are administered in the prescribed and standardized manner, the standardized clues are used to assess the subject's performance, and the standardized criteria are employed to interpret that performance. If any one of the SFST elements is changed, the validity may be compromised.

**Source:**

Stuster, J., & Burns, M. (1998, August). *Validation of the Standardized Field Sobriety Test Battery at BACs Below 0.10 Percent*. Santa Barbara, CA: Anacapa Sciences, Inc.

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## B. Overview of Selected Types of Nystagmus

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**Categories of Nystagmus**

- Vestibular
- Neural
- Pathological Disorders and Diseases

DWI DETECTION & SFST REFRESHER

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Slide 11.

HGN is not the only kind of nystagmus. There are other circumstances under which the eyes will jerk involuntarily. It is important to know some of the other common types of nystagmus and to be aware of their potential impact on field sobriety tests. Nystagmus of several different origins may be seen. The three general categories of nystagmus are Vestibular, Neural, and Pathological Disorders and Diseases.

Vestibular Nystagmus is caused by movement or action to the vestibular system. It can be caused by movement or action to the vestibular system that can occur when an individual is spun around and the fluid in the ear is disturbed or there is a change in the fluid (temperature, foreign substance, etc.).

The HGN test will not be influenced by Vestibular Nystagmus when administered properly.

Nystagmus can also result directly from a disturbance to the neural system. In this course we will only be concerned with gaze-evoked Neural Nystagmus. Alcohol and/or specific drugs can cause three types of gaze nystagmus.

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## Gaze Nystagmus

- Horizontal
- Vertical
- Resting

3

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Slide 12.

For our purposes, Gaze Nystagmus is separated into three types which are Horizontal, Vertical, and Resting.

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## Horizontal Gaze Nystagmus

- Involuntary jerking of eyes, occurring as eyes gaze to side



Horizontal Gaze Nystagmus is an involuntary jerking of the eyes, occurring as the eyes gaze to the side. It is the observation of the eyes for Horizontal Gaze Nystagmus that provides the first and most accurate test in the SFSTs. Although this type of nystagmus is indicative of alcohol impairment, its presence may also indicate use of certain other drugs. Examples of other drug categories are CNS Depressants, Inhalants, and Dissociative Anesthetics such as PCP and its analogs.

**Source:**

(1999). *Horizontal Gaze Nystagmus: The Science and the Law: A Resource Guide for Judges, Prosecutors and Law Enforcement*. National Traffic Law Center. National Highway Traffic Safety Administration. Retrieved from [https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/horizontal\\_gaze\\_nystagmus-the\\_science\\_and\\_the\\_law.pdf](https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/horizontal_gaze_nystagmus-the_science_and_the_law.pdf)

Any deficiency in eye movement, especially if it is acquired or of recent onset, can impair a person's ability to see properly. Drug impairment, including from alcohol, can affect eye movements in several ways, depending on the nature of the intoxicant used. Drug use, including alcohol, is understood to cause physiological changes that are acquired.

**Source:**

Leigh, R., & Zee, D. (2015). *The Neurology of Eye Movements, Fifth Edition*. Oxford University Press.

## Vertical Gaze Nystagmus

Involuntary jerking of eyes (up and down)



Slide 14.

Vertical Gaze Nystagmus is an involuntary jerking of the eyes (up and down) 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. It may also be present with certain other drugs. The drugs that cause VGN are the same ones that cause HGN. There is no known drug that will cause VGN without causing at least four clues of HGN. If VGN is present and HGN is not, it could be a medical condition. For VGN to be recorded, it must be distinct and sustained for a minimum of four seconds at maximum elevation.

## Resting Nystagmus

Jerking of eyes as they look straight ahead



Slide 15.

Resting Nystagmus is referred to as a jerking of the eyes as they look straight ahead. Its presence usually indicates a medical condition or high doses of a Dissociative Anesthetic drug.

## Pathological Disorder Nystagmus

- Brain tumors and other brain damage
- Some inner ear diseases
- Rare in the driving population

### Slide 16.

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. Congenital nystagmus is developed at birth and up to six months, while acquired nystagmus may be caused later in life from medical conditions and/or alcohol or drugs.

Individuals with a long-standing abnormality or deficiency in eye movements often learn to compensate in some manner. One example includes making a head movement rather than an eye movement when someone has a natural lack of smooth pursuit, not due to intoxication, illness, or trauma. Likewise, someone who has a constant and long-standing nystagmus may be able to detect and extract visual information between successive eye movements. Therefore, while the appearance to the officer may be abnormal, the person is not necessarily impaired.

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## Horizontal Gaze Nystagmus Medical Impairment Assessment Procedures

### Check eyes for:

- Equal Pupil Size
- Resting Nystagmus
- Equal Tracking



Slide 17.

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 may be present. If the eyes track together, continue with the test and document the results.

Pupil size may be affected by some medical conditions or injuries. If the two pupils are distinctly different in size, it is possible the subject:

- Has a prosthetic eye
- Is suffering from a head injury
- Has a neurological disorder

Resting Nystagmus is referred to as jerking as the eyes look straight ahead. This condition is not frequently seen. Its presence usually indicates a pathology or high doses of a drug such as a Dissociative Anesthetic. Resting Nystagmus may also be a medical problem. Tracking ability may be affected by certain medical conditions or injuries involving the brain.

This observation is a medical assessment. If the two eyes do not track together, the possibility of a serious medical condition or injury is present. Officers are reminded to ask questions about the subject's eye and general health conditions prior to administering the HGN test. If a subject responds or volunteers information that he or she is blind in one eye or has an artificial eye, and the subject has equal tracking, the officer should make note of the abnormality and proceed with the HGN test. If there are any abnormal findings on the pre-test checks, the officer may choose not to continue with the testing. If HGN testing is continued, officers are reminded this does not follow the standardized protocol and should acknowledge such in any report.

If HGN testing is conducted on a person with a blind eye, typical inconsistent findings could be related to the blind eye not being able to see or track the stimulus, or when the normal eye can no longer see the stimulus, e.g., when checking Distinct and Sustained Nystagmus at Maximum Deviation on the blind eye side.

**Source:**

Citek, K. (2014). *Eye Tests on a Suspect with a Blind Eye*. Pacific University College of Optometry.

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Session 3 – Standardized Field Sobriety Testing Review

## Horizontal Gaze Nystagmus Testing: Three Clues

- Lack of Smooth Pursuit
- Distinct and Sustained Nystagmus at Maximum Deviation
- Onset of Nystagmus Prior to 45 Degrees

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Slide 18.

The HGN test is comprised of three separate components: Lack of Smooth Pursuit, Distinct and Sustained Nystagmus at Maximum Deviation, and Onset of Nystagmus Prior to 45 Degrees. This test may provide important indicators of alcohol and drug use.

The first recommended test you will use at roadside is HGN – an involuntary jerking of the eyes occurring as the eyes gaze to the side. When a person is impaired by alcohol or certain drugs, some jerking will be seen if the eyes are moved far enough to the side.

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 impaired person will not follow smoothly, i.e., windshield wipers moving across a dry windshield. While not an actual Gaze Nystagmus, Lack of Smooth Pursuit is a validated clue in the HGN test.

Distinct and Sustained Nystagmus at Maximum Deviation (Clue Number Two) – Distinct and sustained nystagmus is evident when the eye is held at maximum deviation for a minimum of four seconds and continues to jerk toward the side.

Onset of Nystagmus Prior To 45 Degrees (Clue Number Three) – The jerking of the eye begins prior to the stimulus reaching an approximate 45-degree angle.

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## Administrative Procedures

1. Check for eyeglasses
2. Verbal instructions
3. Position stimulus (12-15 inches and slightly above eye level)
4. Check for Equal Pupil Size and Resting Nystagmus
5. Check for Equal Tracking

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Slide 19.

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## Administrative Procedures

6. Lack of Smooth Pursuit
7. Distinct and Sustained Nystagmus at Maximum Deviation
8. Onset of Nystagmus Prior to 45 Degrees
9. Total the clues
10. Check for Vertical Nystagmus

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Slide 20.

HGN

HGN and VGN can be observed directly and does not require special equipment. You will need a contrasting stimulus for the subject to follow with their eyes. This can be a penlight, pen, or similar object. The stimulus used should be held slightly above eye level, so the eyes are wide open when they look directly at it. It should be held approximately 12 - 15 inches in front of the nose. Remain aware of your position in relation to the subject at all times.

## OFFICER SAFETY IS THE NUMBER ONE PRIORITY ON ANY TRAFFIC STOP.

### Administrative Procedures

1. Check for eyeglasses
2. Verbal instructions
3. Position stimulus (12-15 inches and slightly above eye level)
4. Check for Equal Pupil Size and Resting Nystagmus
5. Check for Equal Tracking
6. Lack of Smooth Pursuit
7. Distinct and Sustained Nystagmus at Maximum Deviation
8. Onset of Nystagmus Prior to 45 Degrees
9. Total the clues
10. Check for Vertical Nystagmus

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Session 3 – Standardized Field Sobriety Testing Review

### Horizontal Gaze Nystagmus Procedures

1. Check for eyeglasses
2. Verbal instructions
3. Position stimulus

DWI DETECTION & SFST REFRESHER

3-21

Slide 21.

It is important to administer the HGN test systematically using the following steps to ensure nothing is overlooked.

Step 1: Check for Eyeglasses (Note if subject wears contacts especially colored contacts because some colored contacts may affect the ability to compare pupil size). Begin by instructing the subject to remove eyeglasses, if worn.

It does not matter whether the subject can see the stimulus with perfect clarity. The subject just needs to see it and be able to follow it.

Step 2: Verbal instructions. Give the subject the appropriate verbal instructions:

- Put feet together, arms at the side
- Keep head still
- Look at the stimulus
- Follow movement of the stimulus with the eyes only
- Keep looking at the stimulus until told the test is over

Step 3: Position the Stimulus. Position the stimulus approximately 12 - 15 inches (30 - 38 cm) in front of subject's nose and slightly above eye level to commence the test. Resting Nystagmus may be observed at this time. Officers should note whether the subject displays Resting Nystagmus.

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## Horizontal Gaze Nystagmus Procedures

4. Equal Pupil Size and Resting Nystagmus
5. Equal Tracking

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Step 4: Equal Pupil Size and Resting Nystagmus. Check for Equal Pupil Size and Resting Nystagmus.

Step 5: Equal Tracking. Check for Equal Tracking. Move the stimulus from center to far right, to far left, and back to center. The speed of the stimulus should be approximately the same speed used as checking for the Lack of Smooth Pursuit. This check may be done more than once.

**There should be a clear, distinguishable break between the check for Equal Tracking and Lack of Smooth Pursuit.**

If there are any abnormal findings on the pre-test checks, the officer may choose not to continue with the testing. If HGN testing is continued, officers are reminded this does not follow the standardized protocol and should acknowledge such in any report.

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## Horizontal Gaze Nystagmus Procedures

6. Check for Lack of Smooth Pursuit
7. Check for Distinct and Sustained Nystagmus at Maximum Deviation
8. Check for Onset of Nystagmus Prior to 45 Degrees

Slide 23.

Step 6: Lack of Smooth Pursuit. Check the left eye for lack of the "Smooth Pursuit" clue. If the eye is observed to jerk while moving, that is one clue. Check the right eye for lack of the "Smooth Pursuit" clue and compare. Check each eye at least twice.

Step 7: Check the right and left eye for the "Distinct and Sustained Nystagmus at Maximum Deviation" clue. If the jerkiness is distinct and sustained, that is one clue. Check each eye at least twice.

Step 8: Onset of Nystagmus Prior to 45 Degrees. Check the left eye for the "Onset of Nystagmus Prior to 45 Degrees" clue. If the jerking begins prior to an approximate 45-degree angle, that is one clue.

Check the right eye for "Onset of Nystagmus Prior to 45 Degrees" clue and compare. Check each eye at least twice.

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## Horizontal Gaze Nystagmus Procedures

9. Total the clues
10. Check for Vertical Gaze Nystagmus

Slide 24.

Step 9: Total the clues. Maximum number of clues possible for each eye: 3. Total maximum number of clues possible for both eyes: 6

It is possible all three clues definitely will be found in one eye, while only two (or sometimes only one) will show up in the other eye. It is always necessary to check both eyes and to check them independently. Notwithstanding, it is unlikely the eyes of someone under the influence of alcohol will behave totally different. Thus, if one eye shows all three clues distinctly while the other eye gives no evidence of nystagmus, the person may be suffering from one of the pathological disorders covered previously.

Step 10: Check for Vertical Nystagmus. The VGN test is simple to administer. During the VGN test, look for jerking as the eyes gaze up and are held for a minimum of four seconds at maximum elevation. Position the stimulus horizontally and instruct the subject to hold their head still and follow the stimulus with the eyes only. Raise the stimulus until the subject's eyes are elevated as far as possible and hold for a minimum of four seconds. Watch closely for evidence of the eyes jerking upward. The jerking must be definite, distinct and sustained.

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## Test Interpretation

**Look for three clues of nystagmus in each eye:**

- Lack of Smooth Pursuit
- Distinct and Sustained Nystagmus at Maximum Deviation
- Onset of Nystagmus Prior to 45 Degrees

### Slide 25.

You should look for three clues of nystagmus in each eye.

- Lack of Smooth Pursuit (The eye cannot follow a moving object smoothly)
- Distinct and Sustained Nystagmus at Maximum Deviation (nystagmus is distinct and sustained when the eye is held at maximum deviation for a minimum of four seconds)
- Onset of Nystagmus Prior to 45 Degrees

Based on recent research, if you observe four or more clues it is likely the subject's BAC is at or above 0.08. Using this criterion, you will be able to classify about 88% of your subjects accurately. This was determined during laboratory and field testing and helps you weigh the various SFSTs as you make your arrest decision.

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## Three Clues of Horizontal Gaze Nystagmus

- Lack of Smooth Pursuit
- Distinct and Sustained Nystagmus at Maximum Deviation
- Onset of Nystagmus Prior to 45 Degrees

Slide 26.

When we administer the HGN test, we look for three specific clues as evidence of impairment. We check each eye independently for each clue.

For standardization, begin with the subject's left eye. Check for the first clue. Next, check right eye for same clue. Repeat this procedure for each clue starting with left eye, then right eye. Compare and document the results. When we are checking an eye, it is good practice to administer the test by the numbers each time, to make sure no step is overlooked.

### Clue Number 1

Lack of Smooth Pursuit



Slide 27.

The first clue requires the subject move the eye to follow the motion of a smoothly moving stimulus.

The stimulus may be the eraser on a pencil, the tip of a penlight, the tip of your finger, or any similar small object.

Begin by holding the stimulus vertically approximately 12 - 15 inches (30 - 38 cm) in front of the subject's nose and slightly above eye level.

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## Clue Number 1

Lack of Smooth Pursuit



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**Slide 28.**

Move the stimulus smoothly all the way out to the right (checking subject's left eye first). Move the object from center to the side as far as the eye can move. Then move the stimulus smoothly all the way across the subject's face to the left (checking the subject's right eye), then back to center. Carefully watch the subject's left eye then right eye and determine if they are able to pursue smoothly. Make at least two complete passes with the stimulus. The stimulus must be moved in a smooth, continuous manner without stopping at either side or the center while checking for this clue. If a person is not impaired by alcohol (or drugs that cause HGN), the eyes should move smoothly as the object is moved back and forth. Analogy: movement of the eyes of a person not impaired by alcohol (or drugs that cause HGN) will be similar to the movement of windshield wipers across a wet windshield versus an impaired person and windshield wipers moving across a dry windshield.

Lack of smooth pursuit can impair the ability to see details (such as when reading a sign) or make accurate observations (as of the direction and speed of another vehicle) when there is relative motion between the observer and the target (one or the other is moving, or both are moving but at different speeds and/or different directions).

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## Mechanics of Clue Number 1

Move object steadily at a speed that takes approximately 2 seconds to bring the eye from center to side

**Slide 29.**

It is necessary to move the object smoothly in order to check the eye's ability to pursue smoothly. The stimulus should be moved from center position, all the way out to the right (checking subject's left eye) where the eye can go no further, and then all the way back across subject's face all the way out to the left where the eye can go no further (checking subject's right eye) and then back to the center.

The object must be moved steadily, at a speed that takes approximately 2 seconds to bring the eye from center to side.

In checking for this clue, make at least two complete passes in front of the eyes.

If you are still not able to determine whether or not the eye is jerking as it moves, additional passes may be made in front of the eyes.

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## Clue Number 2

Distinct and Sustained Nystagmus  
at Maximum Deviation



Once you have completed the check for Lack of Smooth Pursuit, you will check the eyes for distinct and sustained nystagmus when the eye is held at maximum deviation, beginning with the subject's left eye.

*The Mechanics of Clue Number 2:* Once again, position the stimulus approximately 12 - 15 inches (30 - 38 cm) in front of subject's nose and slightly above eye level.

Move the stimulus off to the right (checking subject's left eye) until the eye has gone as far as possible.

Hold the stimulus steady at that position for a minimum of four (4) seconds and carefully watch the eye.

Then, move the stimulus back across the subject's face all the way out to the left (subject's right eye).

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## Clue Number 2

Distinct and Sustained Nystagmus  
at Maximum Deviation



Slide 31.

Hold the stimulus steady and carefully watch the eye. If the person is impaired, the eye is likely to exhibit distinct and sustained jerking when held at maximum deviation for a minimum of 4 seconds. This type of nystagmus is different from fatigue nystagmus. Fatigue nystagmus is a result of the tiring of the eye muscles when the eyes are held at maximum deviation for at least 30 seconds. Four seconds will not cause fatigue nystagmus.

In order to "count" this clue as evidence of impairment, the nystagmus must be distinct and sustained for a minimum of 4 seconds. If you think you see only slight nystagmus at this stage of the test or if you have to convince yourself nystagmus is present, then it isn't really there.

A subject with distinct and sustained nystagmus at maximum deviation, as a result of alcohol or drug impairment, experiences a reduction of visual acuity (clarity or sharpness of vision).

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## Clue Number 3

Onset of Nystagmus Prior to 45 Degrees



Once again, position the stimulus approximately 12 - 15 inches (30 - 38 cm) in front of subject's nose and slightly above eye level.

The angle of onset of nystagmus is simply the point at which the eye is first seen jerking. Examples: With someone at a very high BAC (0.20+), the jerking might begin almost immediately after the eye starts to gaze toward the side. For someone at 0.08 BAC, the jerking might not start until the eye has moved nearly to the 45-degree angle. Generally speaking, the higher the BAC, the sooner the jerking will start as the eye moves toward the side. If the jerking begins prior to 45 degrees, that person's BAC could be 0.08 or above.

A subject with an angle of onset of nystagmus prior to 45 degrees, as a result of alcohol or drug impairment, also experiences a reduction of visual acuity (clarity or sharpness of vision).

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## Clue Number 3

Onset of Nystagmus Prior to 45 Degrees



Slide 33.

It is not difficult to determine when the eye has reached the 45-degree point, but it does require some practice.

If you start with the stimulus approximately 12 - 15 inches (30 - 38 cm) directly in front of the nose, you will reach 45 degrees when you have moved the stimulus an equal distance to the side. At 45 degrees, some white usually will still be visible in the corner of the eye (for most people). Some people's eyes may not exhibit white in the corner at 45 degrees.

## Mechanics of Clue Number 3



Slide 34.

The stimulus is positioned approximately 12 - 15 inches (30 - 38 cm) subject's nose and slightly above eye level. It is necessary to move the stimulus slowly to identify the point at which the eye begins to jerk.

Start again with the subject's left eye. The stimulus should be moved at a speed that takes approximately 4 seconds or more to travel from center to approximately 45 degrees. Moving the stimulus at a slower speed aids the officer in observing when the eye first begins to jerk.

As you are slowly moving the stimulus, watch the eye carefully for any sign of jerking.

When you see the eye jerk, stop moving the stimulus, hold it at that position, and verify the jerking continues. If the jerking is not evident with the stimulus held steady, you have not located the point of onset. Therefore, resume moving the stimulus slowly toward the side until you notice the jerking again.

When you locate the point of onset of nystagmus, stop moving the stimulus and determine whether it is prior to approximately 45 degrees.

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## Horizontal Gaze Nystagmus Test Criterion

4 or more clues indicates BAC above 0.08 (88% accurate)



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**Slide 35.**

Based upon the original developmental research into HGN, the criterion for this test is 4. If a person exhibits at least 4 out of the possible 6 clues, the implication is a BAC above 0.08. Using this criterion, the test is 88% accurate.

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Vertical Gaze Nystagmus (VGN)

## Vertical Gaze Nystagmus



The VGN test is simple to administer. Look for jerking when the eyes are held at maximum elevation for a minimum of four seconds.

- Position the stimulus horizontally, approximately 12 - 15 inches in front of the subject's nose
- Instruct the subject to hold the head still and follow the object with the eyes only
- Raise the object until the subject's eyes are elevated as far as possible
- Hold for a minimum of four seconds
- Watch closely for evidence of the eyes jerking upward
- Conduct this check at least twice

For VGN to be recorded, it must be distinct and sustained for a minimum of four seconds at maximum elevation. VGN may be present in subjects under the influence of high doses of alcohol for that individual, and some other drugs.

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## Horizontal Gaze Nystagmus Demonstration



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Slide 37.

### C. Psychophysical Field Sobriety Tests

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## Walk and Turn

Divided Attention Test  
Mental Task and Physical Task

- Instruction stage
- Walking stage



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3-38

Slide 38.

*Test Stages:* Like all divided attention tests, WAT has two stages. They are: Instruction stage and Walking stage. Both stages are important because they can affect the subject's overall performance on the test.

*Test Conditions:* Whenever possible, the WAT test should be conducted on a reasonably dry, hard, level, non-slippery surface. There should be sufficient room for subjects to complete nine heel-to-toe steps. Field validation studies have indicated varying environmental conditions have not affected a subject's ability to perform this test. Standardizing this test for every type of road condition is unrealistic. The original research study recommended this test be performed on a

dry, hard, level, non-slippery surface and relatively safe conditions. If not, the research recommends: 1) subject be asked to perform the test elsewhere, or 2) only HGN be administered.

The original SCRI studies suggested individuals over 65 years of age or people with back, leg, or inner ear problems had difficulty performing this test. Less than 1.5% of the test subjects in the original studies were over 65 years of age. Also, the SCRI studies suggest individuals wearing heels more than 2 inches high should be given the opportunity to remove their shoes. Officers should consider all factors when conducting SFSTs.

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Session 3 – Standardized Field Sobriety Testing Review

## Safety Precautions



DWI DETECTION & SFST REFRESHER

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Slide 39.

Officers should be mindful of safety precautions when providing instructions for the WAT. By demonstrating the test perpendicular to the subject's "line" and initiating the demonstration with the subject to the left of the officer, the officer will properly demonstrate the turn WITHOUT turning his/her back to the subject. Officers should always be aware of their surroundings and environment when conducting DWI roadside investigations.

---

## Administrative Procedures Instruction Stage

### Verbal Instructions

- Assume heel-to-toe stance
- Arms down at sides
- Don't start until told

Slide 40.

For standardization in the performance of this test, have the subject assume the heel-to-toe stance by giving the following verbal instructions, accompanied by demonstrations.

- Place your left foot on the line (real or imaginary).
- Place your right foot on the line ahead of the left foot, with the heel of your right foot against the toe of the left foot.
- Place your arms down at your sides.
- Maintain this position until I have completed the instructions. Do not start to walk until told to do so.
- Do you understand the instructions so far? (Make sure subject indicates understanding.)

## Administrative Procedures Walking Stage

- Nine heel-to-toe steps, turn, nine heel-to-toe steps
- Turn procedures:
  - Turn around on the line
  - Several small steps

Slide 41.

Explain the test requirements by giving the following instructions, accompanied by demonstrations:

- When I tell you to start, take nine heel-to-toe steps on the line, turn, and take nine heel-to-toe steps down the line.
- When you turn, keep the front (lead) foot on the line, and turn by taking a series of small steps with the other foot, like this.
- While you are walking, keep your arms at your sides, watch your feet at all times, and count your steps out loud.
- Once you start walking, don't stop until you have completed the test.
- Do you understand the instructions? (Make sure subject understands.)
- Instruct the person to begin the test.

If the subject does not 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.

Session 3 – Standardized Field Sobriety Testing Review

## Instruction Stage Clues

- Cannot keep balance while listening to instructions
- Starts too soon



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*Test Interpretation:* You may observe a number of different behaviors when a subject performs this test. Original research demonstrated the behaviors listed below are likely to be observed in someone with a BAC at or above 0.08. Look for the following clues each time this test is given:

Cannot keep balance while listening to the instructions. Two tasks are required at the beginning of this test. The subject must balance heel-to-toe on the line, and at the same time, listen carefully to the instructions. Typically, the person who is impaired can do only one of these things. The subject may listen to the instructions, but not keep balance. Record this clue if the subject does not maintain the heel-to-toe position throughout the instructions. (Feet must actually break apart or step off the line.) Do not record this clue if the subject sways or uses the arms to balance but maintains the heel-to-toe position.

Starts too soon. The impaired person may also keep balance, but not listen to the instructions. Since you specifically instructed the subject not to start walking "until I tell you to begin," record this clue if the subject does not wait.

---

Session 3 – Standardized Field Sobriety Testing Review

## Walking Stage Clues

- Stops while walking
- Does not touch heel-to-toe
- Steps off the line
- Uses arm(s) to balance
- Improper turn
- Incorrect number of steps



DWI DETECTION & SFST REFRESHER

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**Slide 43.**

Stops while walking. The subject stops while walking. Do not record this clue if the subject is merely walking slowly.

Does not touch heel-to-toe. The subject leaves a space of one-half inch or more between the heel and toe on any step.

Steps off the line. The subject steps so that one foot is entirely off the line.

Uses arm(s) to balance. The subject raises one or both arms six or more inches from the sides in order to maintain balance.

Improper turn. The subject removes the front foot from the line while turning. Also record this clue if the subject has not followed directions as instructed, i.e., spins or pivots around or loses balance while turning.

Incorrect number of steps. Record this clue if the subject takes more or fewer than nine steps in either direction.

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Session 3 – Standardized Field Sobriety Testing Review

## Walk and Turn Test Clues Summary

SFSTs are a tool to assist you in seeing visible signs of impairment and are not a pass/fail test.

DWI DETECTION & SFST REFRESHER

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**Slide 44.**

If subject can't do the test, record observed clues and document the reason for not completing the test, e.g., subject's safety.

**Remember the SFSTs are a tool to assist you in seeing visible signs of impairment and are not a pass/fail test.**

Subject gets into a "leg lock" position (legs crossed, unable to move.) If the subject has difficulty with the test (for example, steps off the line), continue from that point, not from the beginning. This test may lose its sensitivity if it is repeated several times. Observe the subject from a safe distance and limit your movement which may distract the subject during the test.

**Always consider officer safety.**

---



## Walk and Turn Test Criterion

2 or more clues indicates BAC  
at or above 0.08 (79% accurate)



Based on research, if the subject exhibits two or more clues on this test or cannot complete it, classify the subject's BAC as at or above 0.08. Using this criterion, you will be able to accurately classify 79% of your subjects.

**Source:**

Stuster, J., & Burns, M. (1998, August). *Validation of the Standardized Field Sobriety Test Battery at BACs Below 0.10 Percent*. Santa Barbara, CA: Anacapa Sciences, Inc.

*Review of Divided Attention Definition:* WAT is a field sobriety test based on the important concept of divided attention.

The test requires the subject to divide attention among mental tasks and physical tasks. The mental tasks include comprehension of verbal instructions, processing of information, and recall of memory. The physical tasks include balance and coordination. The subject is required to maintain balance and coordination while standing still, walking, and turning.

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Session 3 – Standardized Field Sobriety Testing Review

## Walk and Turn Demonstration



DWI DETECTION & SFST REFRESHER

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Slide 46.

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## One Leg Stand

Session 3 – Standardized Field Sobriety Testing Review

## One Leg Stand

Divided Attention Test  
Mental Task and Physical Task



- Instruction stage
- Balance and counting stage

DWI DETECTION & SFST REFRESHER

3-47

Slide 47.

Like all divided attention tests, OLS has two stages. They are: Instruction stage and Balance and Counting stage. Both stages are important because they can affect the subject's overall performance on the test.

*Test Conditions:* Whenever possible, the OLS test should be conducted on a reasonably dry, hard, level, and non-slippery surface. Subject's safety should be considered at all times. Standardizing this test for every type of road condition is unrealistic. The original research study recommended this test be performed on a dry, hard, level, non-slippery surface and relatively safe conditions. If not, the research recommends: 1) subject be asked to perform the test

elsewhere; or 2) only HGN be administered. However, field validation studies have indicated that varying environmental conditions have not affected a subject's ability to perform this test.

The original SCRI studies suggested individuals over 65 years of age, people with back, leg or inner ear problems, or people who are overweight by 50 or more pounds may have difficulty performing this test. Less than 1.5% of the test subjects in the original studies were over 65 years of age.

There was no data containing the weight of the test subjects included in the final report. Also, the SCRI studies suggest individuals wearing heels more than 2 inches high should be given the opportunity to remove their shoes.

---

Session 3 – Standardized Field Sobriety Testing Review

## Administrative Procedures Instruction Stage

- Stand straight, feet together
- Keep arms at sides
- Maintain position until told otherwise



DWI DETECTION & SFST REFRESHER

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**Slide 48.**

Initiate the test by giving the following instructions, accompanied by demonstrations.

- Please stand with your feet together and your arms down at the sides, like this.
- Do not start to perform the test until I tell you to do so.
- Do you understand the instructions so far?

---

## Administrative Procedures Balance and Counting Stage



Explain the test requirements using the following verbal instructions accompanied by demonstrations:

- When I tell you to start, raise either leg with the foot approximately six inches off the ground, keeping your foot parallel to the ground.
- Keep both legs straight and your arms at your side.
- While holding that position, count out loud in the following manner: “one thousand one, one thousand two, one thousand three,” and so on until told to stop.
- Keep your arms at your sides at all times and keep watching the raised foot.
- Do you understand?
- Go ahead and perform the test. (Officer should always time the 30 seconds. Test should be discontinued after 30 seconds.)

Observe the subject from a safe distance. Although not part of the administrative procedures, if the subject puts the foot down, give instructions to pick the foot up again and continue counting from the point at which the foot touched the ground.

---

## One Leg Stand Test Clues

- Sways while balancing
- Uses arm(s) to balance

Slide 50.

You may observe a number of different behaviors when a subject performs this test. The original research found the behaviors listed below are the most likely to be observed in someone with a BAC at or above 0.08. When administering the OLS test, we look for certain specific behaviors. Each behavior or action is considered one clue. There is a maximum number of 4 clues on this test. Look for the following clues each time the OLS test is administered.

The subject sways while balancing – This refers to side to side or back and forth motion of the body, or a swaying motion of the foot, while the subject maintains the OLS position.

Slight tremors of the foot or body should not be interpreted as swaying.

Uses arm(s) to balance – Subject moves one or both arm(s) 6 or more inches from the side of the body in order to keep balance.

---

## One Leg Stand Test Clues

- Hopping
- Puts foot down

Slide 51.

Hopping – Subject is able to keep one foot off the ground, but resorts to hopping in order to maintain balance.

Puts foot down – The subject is not able to maintain the OLS position, putting the foot down one or more times during the 30 second count.

If the subject puts the foot down, give instructions to pick the foot up again and continue counting from the point at which the foot touched.

If subject can't do the test, record observed clues and document the reason for not completing the test, e.g. subject's safety.

Remember time is critical in this test. The original SCRI research has shown a person with a BAC above 0.10 can maintain balance for up to 25 seconds, but seldom as long as 30.

---

## One Leg Stand Test Criterion

2 or more clues indicates BAC  
at or above 0.08 (83% accurate)



Based on research, if an individual shows two or more clues or cannot complete the OLS, there is a good chance the BAC is at or above 0.08. Using that criterion, you will accurately classify 83% of the people you test as to whether their BAC's are at or above 0.08.

**Source:**

Stuster, J., & Burns, M. (1998, August). *Validation of the Standardized Field Sobriety Test Battery at BACs Below 0.10 Percent*. Santa Barbara, CA: Anacapa Sciences, Inc.

Observe the subject from a safe distance and minimize movement during the test so as not to interfere. If the subject puts the foot down, give instructions to pick the foot up again and continue counting from the point at which the foot touched the ground. Terminate the test after 30 seconds.

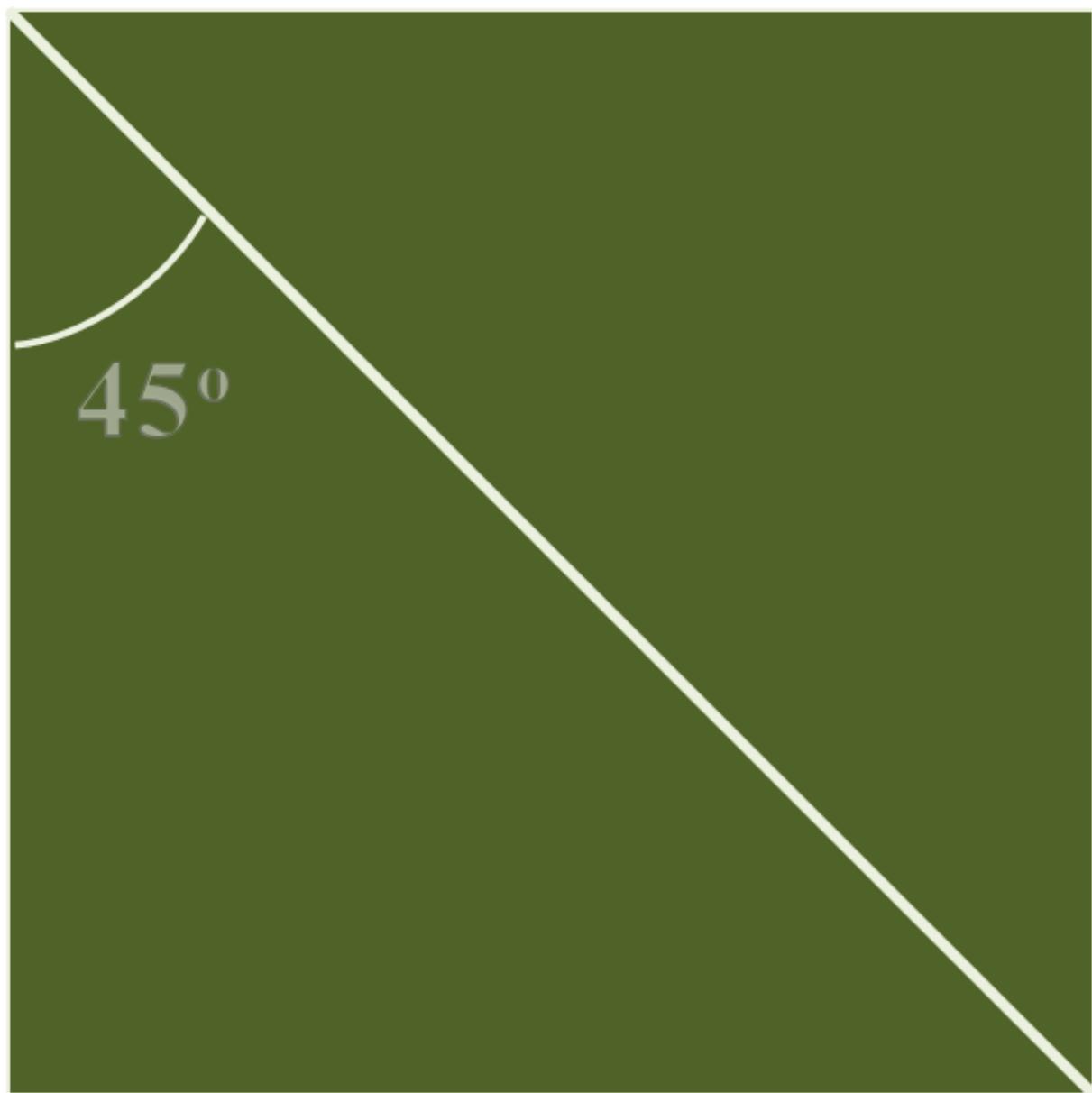
*Review of Divided Attention Definition:* OLS is another field sobriety test that employs divided attention. The subject's attention is divided among such simple tasks as balancing, listening, and counting out loud. Although none of these is particularly difficult in itself, the combination can be very difficult for someone who is impaired.

---

## One Leg Stand Demonstration



## Questions?



# 4

# SFST Refresher

## Written Examination and Program Conclusion

### LEARNING OBJECTIVES

- Demonstrate knowledge and proficiency in administering the SFSTs
- Complete a written examination with a passing grade
- Provide comments and suggestions for improving the course

### CONTENTS

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E. Concluding Remarks .....	6
F. Certificates and Dismissal .....	7

### LEARNING ACTIVITIES

- Written Participant Examination
- Written Participant Critique
- Instructor-Led Presentation



## Learning Objectives

- Demonstrate knowledge and proficiency in administering SFSTs
- Complete written examination with passing grade
- Provide comments and suggestions for improving course



Slide 2.

---

### A. Proficiency Examination



## Proficiency Examination

Slide 3.

- Demonstrate ability to give proper verbal instructions
- Demonstrate ability to carry out the mechanics of testing for each clue
- Demonstrate ability to estimate a 45-degree angle
- Demonstrate ability to give proper verbal instructions
- Demonstrate ability to carry out appropriate physical demonstrations to support the verbal instructions
- Demonstrate ability to give proper verbal instructions
- Demonstrate ability to carry out appropriate physical demonstrations to support the verbal instructions



## Detection Phases

- What are the three phases of detection?
- What is the definition of "DWI detection"?
- What is the police officer's principal decision during Detection Phase One?
- During Phase Two?
- During Phase Three?

## Slide 4.

- What are the three phases of detection?
- What is the definition of "DWI detection"?
- What is the police officer's principal decision during Detection Phase One?
- During Phase Two?
- During Phase Three?



## Field Sobriety Testing

- What does "nystagmus" mean?
- WAT is an example of a \_\_\_\_\_ attention test
- Name the eight distinct clues of WAT
- Name the four distinct clues of OLS
- Name the three distinct clues of HGN

## Slide 5.

- What does "nystagmus" mean?
- Walk and Turn (WAT) is an example of a \_\_\_\_\_ attention test.
- Name the eight distinct clues of WAT.

- Name the four distinct clues of One Leg Stand (OLS).
- Name the three distinct clues of Horizontal Gaze Nystagmus (HGN).

---

Session 4 – Written Examination and Program Conclusion

## Field Sobriety Testing

- What is the critical angle for determining whether the third clue of HGN is present?
- How many steps in each direction must the subject take in the WAT test?
- How long must the subject stand on one foot in the OLS test?

DWI DETECTION & SFST REFRESHER

4 - 6

**Slide 6.**

- What is the critical angle for determining whether the third clue of HGN is present?
- How many steps in each direction must the subject take in the WAT test?
- How long must the subject stand on one foot in the OLS test?

---

Session 4 – Written Examination and Program Conclusion

## Field Sobriety Testing

- In the WAT test, a subject who steps off the line during the first 9 steps and once again during the second 9 steps and who uses arm(s) to balance twice during the second 9 steps has produced \_\_\_\_ distinct clue(s).
- How reliable is each test using the San Diego study?

DWI DETECTION & SFST REFRESHER

4 - 7

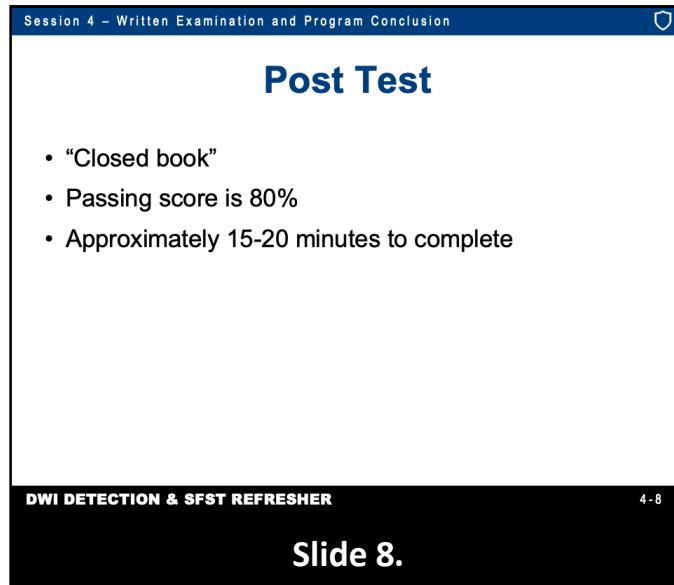
**Slide 7.**

- In the WAT test, a subject who steps off the line during the first 9 steps and once again during the second 9 steps and who uses arm(s) to balance twice during the second 9 steps has produced \_\_\_\_ distinct clue(s).

- How reliable is each test using the San Diego field validation study?

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## B. Post Test



Session 4 – Written Examination and Program Conclusion

### Post Test

- “Closed book”
- Passing score is 80%
- Approximately 15-20 minutes to complete

DWI DETECTION & SFST REFRESHER

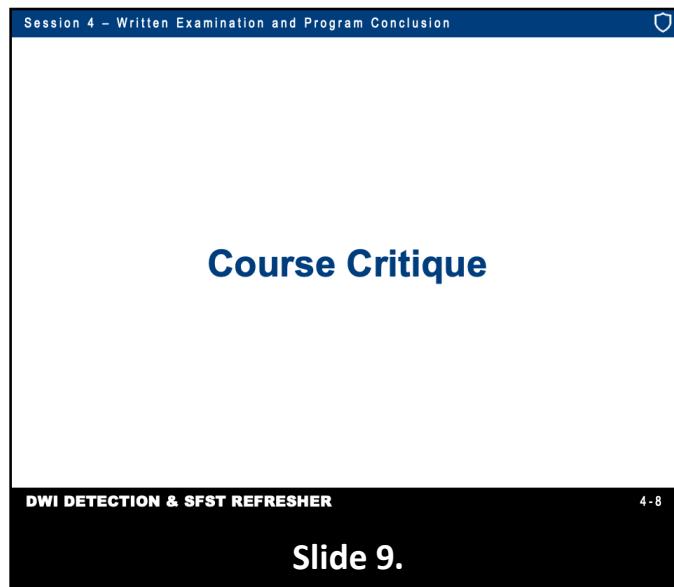
4-8

**Slide 8.**

Purpose of the Post Test: to compare with pretest and determine extent of knowledge gained by participants.

---

## C. Critique



Session 4 – Written Examination and Program Conclusion

### Course Critique

DWI DETECTION & SFST REFRESHER

4-8

**Slide 9.**

Purpose of the critique form: To identify possible improvements that can and should be made to this program.

---

## D. Review of Post Test

Session 4 – Written Examination and Program Conclusion

## Review of Post Test

DWI DETECTION & SFST REFRESHER 4-10

**Slide 10.**

If passing score is not achieved, participant(s) will be allowed to take a “make up” exam at a future date not less than fifteen days nor more than 30 days from the completion of the course.

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## E. Concluding Remarks

Session 4 – Written Examination and Program Conclusion

## Ultimate Goal

Increase DWI Deterrence and Decrease Alcohol Related Crashes, Deaths and Injuries.



DWI DETECTION & SFST REFRESHER 4-11

**Slide 11.**

## F. Certificates and Dismissal

Session 4 – Written Examination and Program Conclusion

## Job Performance Objectives

**You will become better able to:**

- Recognize and interpret evidence of DWI violations
- Administer and interpret validated psychophysical SFSTs
- Describe DWI evidence clearly and convincingly

DWI DETECTION & SFST REFRESHER 4-12

**Slide 12.**

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Session 4 – Written Examination and Program Conclusion

## Questions?

DWI DETECTION & SFST REFRESHER 4-13

**Slide 13.**

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**PARTICIPANT PROFICIENCY EXAMINATION**  
**STANDARDIZED FIELD SOBRIETY TESTs**

Name\_\_\_\_\_ Date\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

Agency\_\_\_\_\_

**I. HORIZONTAL GAZE NYSTAGMUS**

1. \_\_\_\_\_ Have subject remove glasses if worn.
2. \_\_\_\_\_ Gives verbal instructions.
3. \_\_\_\_\_ Stimulus held in proper position (approximately 12"-15" from nose, just slightly above eye level).
4. \_\_\_\_\_ Check for equal pupil size and resting nystagmus.
5. \_\_\_\_\_ Check for equal tracking.
6. \_\_\_\_\_ Lack of Smooth Pursuit: Smooth movement from center of nose to maximum deviation in approximately 2 seconds and then back across subject's face to maximum deviation in right eye, then back to center.  
Check left eye, then right eye. (Repeat)
7. \_\_\_\_\_ Distinct & Sustained Nystagmus at Max. Deviation: Eye held at maximum deviation for a minimum of 4 seconds (no white showing). Check left eye, then right eye. (Repeat)
8. \_\_\_\_\_ Onset of Nystagmus Prior to 45 Degrees: Eye moved slowly (approximately 4 seconds) from center to 45 angle.  
Check left eye, then right eye. (Repeat)
9. \_\_\_\_\_ Total the number of clues.
10. \_\_\_\_\_ Check for Vertical Gaze Nystagmus. (Repeat)

**II. WALK AND TURN**

1. \_\_\_\_\_ Instructions given from a safe position.
2. \_\_\_\_\_ Tells subject to place feet on a line in heel-to-toe manner (left foot behind right foot) with arms at sides and gives demonstration.
3. \_\_\_\_\_ Tells subject not to begin test until instructed to do so and asks if subject understands.
4. \_\_\_\_\_ Tells subject to take nine heel-to-toe steps on the line and demonstrates.
5. \_\_\_\_\_ Explains and demonstrates turning procedure.
6. \_\_\_\_\_ Tells subject to return on the line taking nine heel-to-toe steps.
7. \_\_\_\_\_ Tells subject to count steps out loud.
8. \_\_\_\_\_ Tells subject to look at feet while walking.

9. \_\_\_\_\_ Tells subject not to raise arms from sides.
10. \_\_\_\_\_ Tells subject not to stop walking once they begin.
11. \_\_\_\_\_ Asks subject if all instructions are understood.

### III. ONE LEG STAND

1. \_\_\_\_\_ Instructions given from a safe position.
2. \_\_\_\_\_ Tells subject to stand straight, place feet together, and hold arms at sides.
3. \_\_\_\_\_ Tells subject not to begin test until instructed to do so and asks if subject understands.
4. \_\_\_\_\_ Tells subject to raise one leg, either leg, approximately 6" from the ground, keeping raised foot parallel to the ground and gives demonstration.
5. \_\_\_\_\_ Tells subject to keep both legs straight and to look at elevated foot.
6. \_\_\_\_\_ Tells subject to count out loud in the following manner: one thousand one, one thousand two, one thousand three, and so on until told to stop, and gives demonstration.
7. \_\_\_\_\_ Asks subject if all instructions are understood.
8. \_\_\_\_\_ Checks actual time subject holds leg up. (Time for 30 seconds.).

Instructor: \_\_\_\_\_

Note: In order to pass the proficiency examination, the student must explain and proficiently complete each of the steps listed.

## DWI Detection and SFST - Course and Instructor Evaluation

For items 1-6, please select your level of agreement with the following statements. Include any additional information in the space provided.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. This course enabled me to improve my ability to recognize and interpret evidence of DWI violations. Comments: _____ _____	0	0	0	0	0
2. This course enabled me to administer and interpret the scientifically validated psychophysical tests. Comments: _____ _____	0	0	0	0	0
3. This course enabled me to describe DWI evidence clearly and convincingly. Comments: _____ _____	0	0	0	0	0
4. This course enabled me to review information regarding recent case law and research studies. Comments: _____ _____	0	0	0	0	0

***Please rate how helpful each workshop session was for you personally.***

Item	Poor	Fair	Good	Very Good	Excellent
Vehicle in Motion and Personal Contact	0	0	0	0	0
Standardized Field Sobriety Testing Review	0	0	0	0	0
Processing the Arrested Subject and Preparation for Trial (Optional Session)	0	0	0	0	0
Overcoming Impaired Driving Defenses and Legal Issues (Optional Session)	0	0	0	0	0
Live Alcohol Workshop (Optional Session)	0	0	0	0	0
Video Alcohol Workshop (Optional Session)	0	0	0	0	0
Introduction to Drugged Driving (Optional Session)	0	0	0	0	0

Please mark the appropriate word to indicate your agreement or disagreement with each of the following statements.

Item	Agree	Disagree	Not Sure
The program contains some information that is not needed and that should be deleted.	0	0	0
There are some important topics missing from the program that should be added.	0	0	0
The program is too short.	0	0	0
I feel this program has improved my own ability to enforce DWI laws.	0	0	0
The instructors did a good job.	0	0	0
I am very glad I attended the program.	0	0	0
The program is too long.	0	0	0
The instructors should have been better prepared.	0	0	0
I feel fully qualified to use the nystagmus test now.	0	0	0
I feel fully qualified to use the two divided attention tests now.	0	0	0
Too much time was spent practicing with drinking volunteers.	0	0	0
These three new tests definitely will improve our ability to identify impaired drivers.	0	0	0

If you absolutely had to delete one session or topic from this course, what would it be?

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If you could add one new topic or session to this course, what would it be?

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	Poor	Fair	Good	Very Good	Excellent
Please rate the overall quality of the course.	0	0	0	0	0

Please rate your instructors for this course. Rate the instructor(s) by selecting the appropriate response:

Instructor Name	Poor	Below Average	Average	Above Average	Excellent
Comments: <hr/>	0	0	0	0	0
Comments: <hr/>	0	0	0	0	0
Comments: <hr/>	0	0	0	0	0
Comments: <hr/>	0	0	0	0	0
Comments: <hr/>	0	0	0	0	0

Name (optional): \_\_\_\_\_