

Aaron Botts, Corporal

- 1 Law Enforcement Officer since 2008
- 2 Denver Police Department: DUI/DRE Unit, Colorado Community College System: Adjunct Professor of Criminal Justice
- 3 SFST Instructor, DRE Instructor, Intoxilyzer Instructor, RADAR/LIDAR Instructor
- 4 2021 Colorado Law Enforcement Officer of the Year (MADD/CDOT)
2024 Denver Police Department Officer of the Year

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Data Driven Approaches to Impaired Driving Investigations

AARON BOTTS, CORPORAL

October 2024

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Disclosures

- These techniques and methods have been proven effective within my state's legal framework. Officers should ensure that these techniques align with their own state's laws and guidelines.
- This course does not replace formal SFST or DRE training but complements it with additional field-tested strategies.
- The information provided is based on personal experience and data analysis; individual results may vary based on local enforcement policies and legal standards.
- Officers are encouraged to consult their department's policies and state-specific regulations when applying these techniques.

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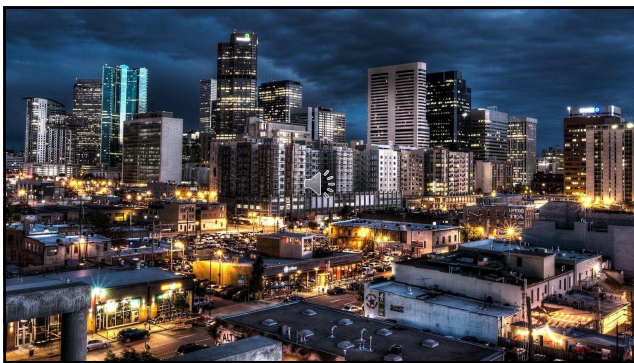
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Learning Objectives

- 1 Leverage face-to-face observation to efficiently identify possible impairment
- 2 Learn a questioning technique designed to challenge a driver's cognitive abilities
- 3 Apply the HGN test in a variety of conditions
- 4 Better identify impairment through driver responses and behaviors

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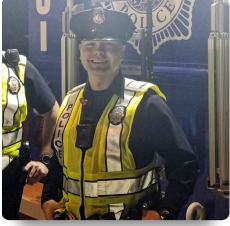
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You may encounter many defeats, but you must not be defeated. In fact, it may be necessary to encounter the defeats, so you can know who you are, what you can rise from, how you can still come out of it.

Maya Angelou

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Aaron Botts



Police Officer since 2008
 8 Years with the Wheat Ridge Police Department (85 Sworn)
 With Denver Police Department since 2016 (1500 sworn)
 Adjunct Professor Criminal Justice since 2024

Qualifications
 SFST Instructor
 DRE Instructor
 Intoxilyzer 9000 Instructor
 RADAR/LIDAR Instructor

Experience
 600+ Enforcement SFSTs
 1400+ Career Impaired Driving Investigations

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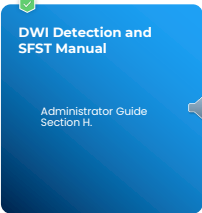
DWI Detection AND Standardized Field Sobriety Testing



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Purpose of the Course



SFST ADMINISTRATOR GUIDE

Purpose of the Course
 The purpose of this course is to provide law enforcement officers with the knowledge and skills necessary to effectively administer the SFST. This course is designed to ensure that officers are able to identify and document signs of impairment and to administer the SFST in a standardized and consistent manner. The course will cover the following topics: the purpose of the SFST, the components of the SFST, the administration of the SFST, and the documentation of the results. The course will also provide officers with the opportunity to practice the SFST in a controlled environment.

Objectives
 Upon completion of this course, participants will be able to: identify the purpose of the SFST; describe the components of the SFST; administer the SFST in a standardized and consistent manner; and document the results of the SFST.

Course Objectives
 The course objectives are to provide participants with the knowledge and skills necessary to effectively administer the SFST. The course will cover the following topics: the purpose of the SFST, the components of the SFST, the administration of the SFST, and the documentation of the results. The course will also provide participants with the opportunity to practice the SFST in a controlled environment.

Course Content
 The course content is divided into several sections. The first section covers the purpose of the SFST. The second section covers the components of the SFST. The third section covers the administration of the SFST. The fourth section covers the documentation of the results. The course will also provide participants with the opportunity to practice the SFST in a controlled environment.

Course Evaluation
 The course will be evaluated using a variety of methods. These methods include pre-course and post-course surveys, a final exam, and a practical assessment. The course will be evaluated on a regular basis to ensure that it is providing participants with the knowledge and skills necessary to effectively administer the SFST.

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Administrator's Guide – P. 10

Successful DWI detectors are those officers who know:

What to look and listen for,

Who have the skills to ask the right questions,

And choose and use the right tests.

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“Advanced”
Personal
Contact

Phase Two: Personal Contact

Session 6

Phase Two:
Personal Contact

DETECTION & SFST

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“Advanced”
Personal
Contact

The Visual
Detection of
DWI Motorists

U.S. Department of Transportation
National Highway Traffic Safety
Administration
NHTSA
www.nhtsa.gov
DOT-HQ-808-077


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24 Cues

4 Driving Behavior Categories

Most Common and Reliable Initial Indicators of DWI

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



WI DETECTION & SFST 5-7

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WI DETECTION & SFST

DRIVE DETECTION GUIDE

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

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WI DETECTION & SFST

DRIVE DETECTION GUIDE

Weaving plus any other cue: $p = \text{at least } .65$
Any two cues: $p = \text{at least } .50$

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

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

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Crash Scenario

Witness Report
 No headlights
 Weaving across lane lines
 Speeding

What is the likelihood the driver's BAC is above a 0.08?

Weaving = 50% - 75%
 No headlights = 55% - 65%

Both together = At least 65%



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Alcohol Facts (2019)

9,478 lives were lost in speed-related crashes.

The crash occurred at 0200 hours Saturday morning

Percentage of Alcohol-Impaired Drivers in Fatal Crashes who were Speeding

| Category | Percentage |
|-----------------------------------|------------|
| Drivers with BAC of .08 or higher | 37% |
| Weekdays: 12 a.m. to 3 a.m. | 61% |
| Weekends: 12 a.m. to 3 a.m. | 68% |

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Full Crash Scenario

Weaving = 50% - 75%

No headlights = 55% - 65%

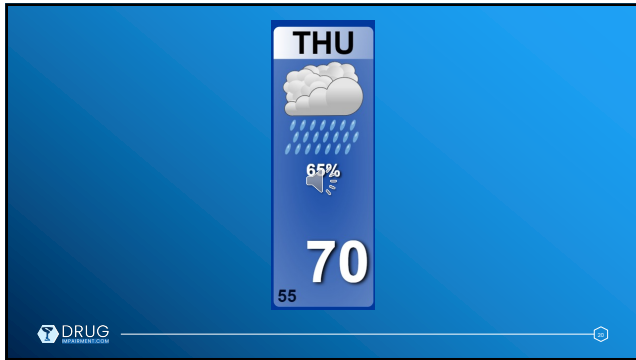
Both together = At least 65%

Time & Day Factor = 68%

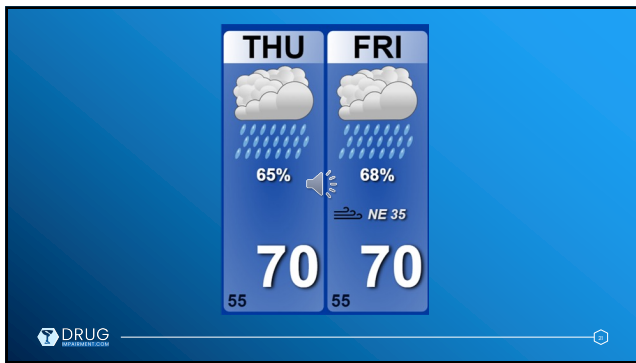


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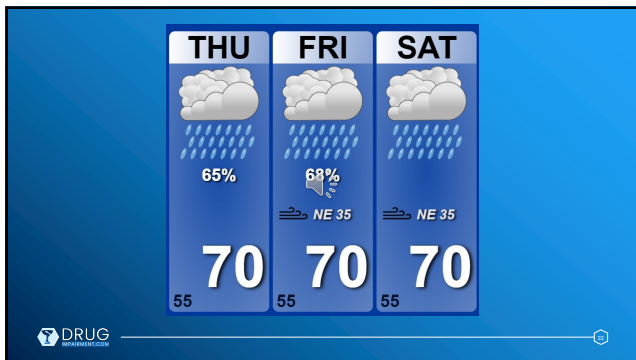
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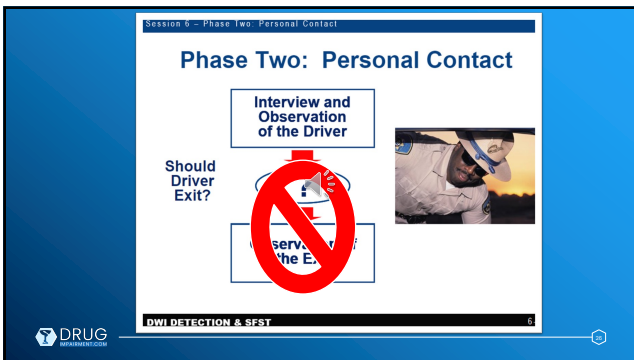
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Session 6 - Phase Two: Personal Contact

What Do You Hear?

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

Personal Contact

What do you see?

Personal Contact

What do you smell?

CORONA VIRUS

DWI DETECTION & SFST

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Session 6 - Phase Two: Personal Contact

What Do You See?

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

DWI DETECTION & SFST

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Session 6 - Phase Two: Personal Contact

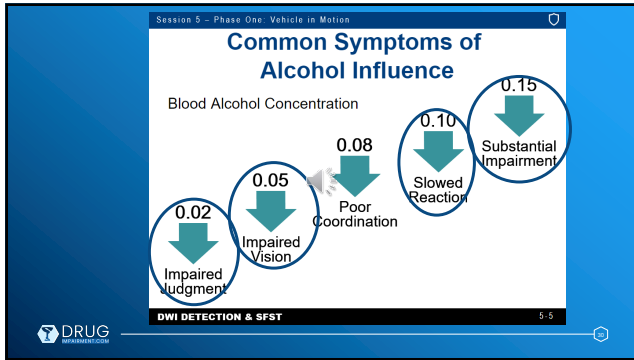
What Do You Hear?

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

DWI DETECTION & SFST

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Developing the Questions

- Data Gathered from:**
 - SFST Arrest Log
 - Case Reports
 - Body Worn Camera
 - 7 years of data covering over 350 interviews
- Refined through repetition**
- Cases not analyzed:**
 - Too drunk to answer
 - Non-English or questions not asked
 - Only 1 question asked
 - Juveniles

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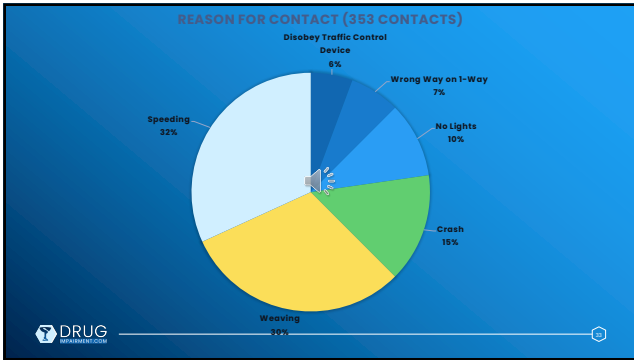
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Administrator's Guide - P. 10

Cooperation Honesty Self Appraisal Officer Appraisal

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- 1 Traffic Stop, Crash - On scene or elsewhere
- 2 Introduce yourself
- 3 Explain the reason for the contact - Ask for an explanation
- 4 Ask for required documents
- 5 While the driver is searching for documents...

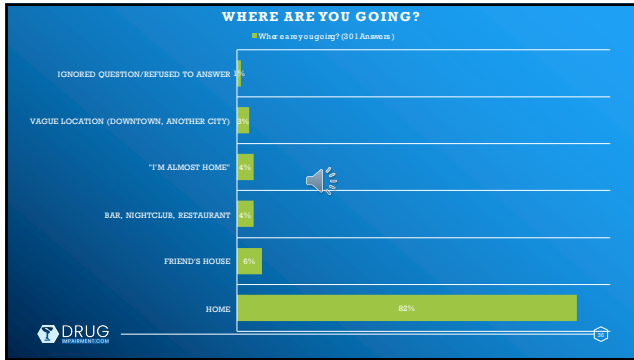
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Question 1

Where are you heading to tonight?

- Ability to multi-task
- Orientation
- Establish a likely truthful response
 - Sets the bar for honesty

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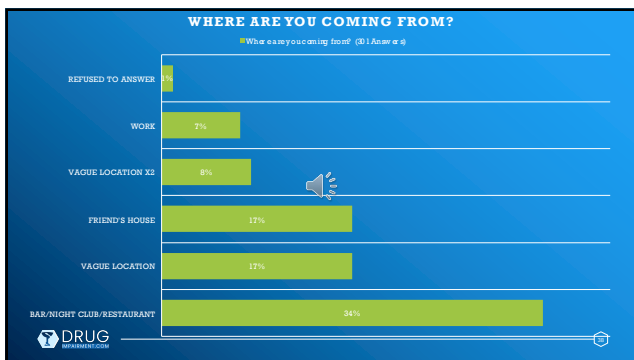
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Question 1 – follow-up

Where are you coming from?

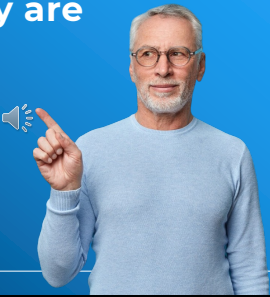
- Ability to multi-task
- Orientation
- Compare how they answer
 - Pause
 - Vague location
 - Refuses to answer
 - Ignores the question

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To admit they are coming from somewhere that alcohol could be consumed



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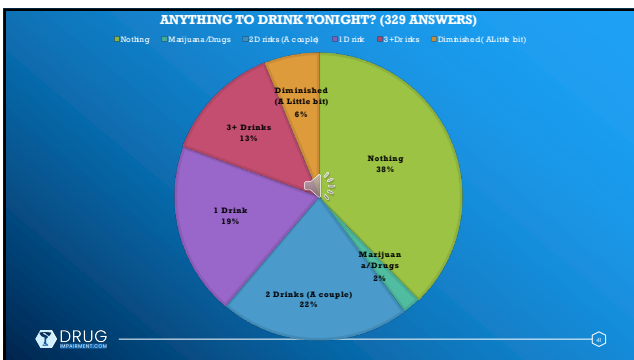
Question 2

Have you had anything to drink tonight?

- Better than "How much"
- Is a logical next question based on where they are coming from.
- Will admit or deny drinking

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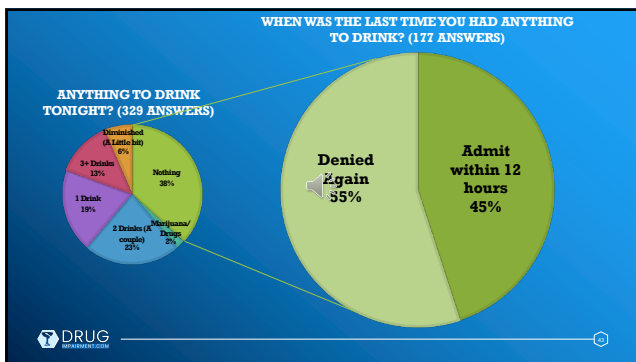
Question 2 – follow-up

When was the last time you had anything to drink?

- May admit drinking earlier in the day
- May admit in the last few hours
- May admit to the day before
- May continue to deny





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To admit they consumed alcohol





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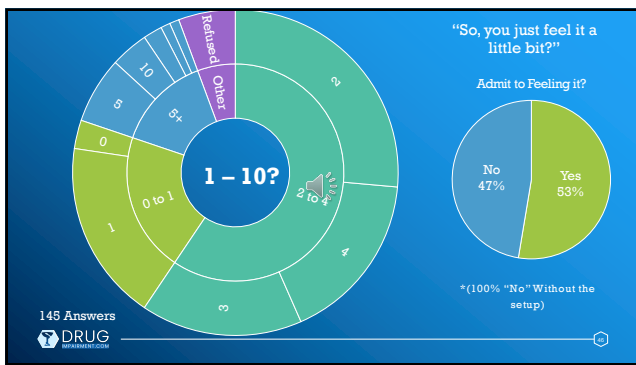
Question 3

On a scale from 1 – 10, where 1 is not intoxicated and 10 is extremely intoxicated, what number are you at?

- Wording is important
- Emphasize the word "extremely"
- May follow up with "So you just feel it a little bit?"



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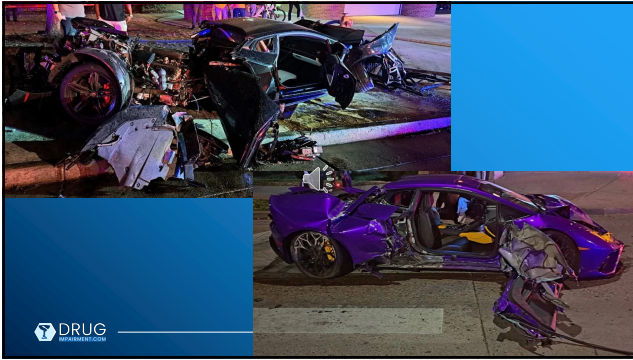


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To admit they feel the alcohol




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Question 4


Can I check your eyes to make sure you're good to drive?

- "Nystagmus check"
- Advanced technique
- Not part of basic SFST training
- Has been used for years
- Officer safety is paramount




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Check for nystagmus



- Tell the subject, "Keep your head still and follow my finger with your eyes only."
- The head should be turned to the side no more than 45 degrees and the ears should be level with the shoulders.
- Move finger to B pillar, hold (min. 4 sec.), then cross to A pillar, hold, back to center
- You are looking for the "presence of nystagmus"



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Scientific backing

ISSUE HIGHLIGHT

Nystagmus testing in intoxicated individuals

Karl Citek, O.D., Ph.D.,^a Bret Ball, O.D.,^a and Dale A. Rutledge, Lieutenant^b

^aCollege of Optometry, Pacific University, Forest Grove, Oregon and ^bThe Oregon State Police, Wilsonville, Oregon

Goal of study:
To establish the validity and reliability of HGN and VGN in the seated and supine postures...

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Seated HGN

In the seated posture, the subject sat in an armless chair or folding chair, with head upright and turned approximately 45 degrees to the side. The evaluator stood to the same side as the subject's turned head, such that the subject always directly faced the evaluator (see Figure 1).




Figure 1 Demonstration of Horizontal Gaze Nystagmus test in seated posture.

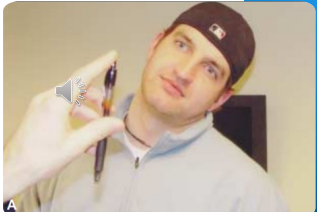
- Relevant
- Procedure Adjustments
- Supported

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Positional alcohol nystagmus (PAN)

Officers normally do not assess PAN, but it is mentioned in the training manual as a type of nystagmus of which they must be aware.⁵ PAN may be induced in an alcohol-impaired individual when the head is tilted with respect to straight ahead, with the nystagmus present in primary gaze. Previous research has demonstrated that PAN is not induced in a supine posture, when the head is in line with the body.¹⁸ The presence of PAN is easily differentiated from the types of nystagmus expected during the HGN and VGN tests due to the non-upright head position and straight-ahead gaze.



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Table 3. Sensitivity, false alarm rate, accuracy, and detectability index for HGN data at each test posture at two criterion blood alcohol concentration (0.08% and 0.10%)*

| BAC = 0.08% | Posture | | Supine | McKnight et al. |
|------------------|----------|---------|--------|---------------------|
| | Standing | Seated | | |
| Sensitivity | 0.890 | 0.799 ↓ | 0.891 | 0.75 |
| False alarm rate | 0.367 | 0.285 ↓ | 0.462 | 0.32 |
| Accuracy | 77.3% | 76.1% ↓ | 73.0% | 71% |
| d' | 1.568 | 1.407 ↓ | 1.326 | 1.15 |
| BAC = 0.10% | Standing | Seated | Supine | Good and Augsburger |
| | | | | |
| Sensitivity | 0.956 | 0.887 ↓ | 0.969 | 0.96 |
| False alarm rate | 0.503 | 0.408 ↓ | 0.561 | 0.82 |
| Accuracy | 64.7% | 68.9% ↑ | 61.3% | 90% |
| d' | 1.698 | 1.442 ↓ | 1.708 | 0.88 |

d', Detectability index; HGN, horizontal gaze nystagmus; and BAC, blood alcohol concentration.
* Included for comparison are calculations based on the data recorded by McKnight et al. 29 testing in a seated posture, and Good and Augsburger, 5 testing in a standing posture.

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Nystagmus Testing in Intoxicated Individuals

Study Conclusion

"We conclude that the proper use of the HGN and VGN tests at any test posture will help an officer correctly identify individuals impaired with alcohol at BACs of 0.08% and higher."

"Results are presented to demonstrate that officers can correctly identify and distinguish PAN from other types of nystagmus."

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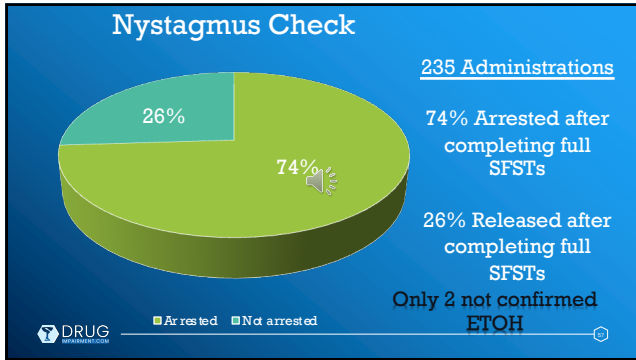
In the Manual

Source:
Citek, K., Ball, B., & Rutledge, D.A. (2003, November). Nystagmus Testing In Intoxicated Individuals. *Optometry*, 74(11), 695-710.

An example of PAN is the spinning of a room when a person lies down after consuming alcohol.

Location
Session 8 – page 16

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Documentation

Do not document clues

- Unless you did the full HGN test in seated position
- Otherwise:
 - The defendant agreed to let me check his eyes to make sure he was okay to drive, and I observed the presence of nystagmus

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What about drugs?

Nystagmus in the "DID" drugs

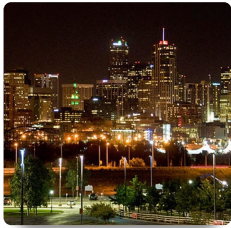
Dilated pupils in the "SCH" drugs;
Constricted for NA

"Look forward, tilt your head back, and close your eyes"

Look for eyelid tremors

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Case Study



Friday Morning
0020 hours

Speeding
57 mph in a 35-mph zone

Driving towards highway
Away from downtown

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Case Study

Phase 1

- Friday morning @ 0020 hrs
- 57 mph in a 35-mph zone
- Driving away from downtown

Phase 2

- Speech: Normal
- Eyes: Bloodshot
- Odor: Slight from car (open Jeep), wearing face mask
- Attitude: Polite & Cooperative
- Coming from "downtown"
- Denies Drinking

Write a ticket and move on?

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Session 7 - Detection and General Deterrence

Alcohol Facts (2019)

9,478 lives were lost in speed-related crashes.

Percentage of Alcohol-Impaired Drivers in Fatal Crashes who were Speeding



| Category | Percentage |
|-----------------------------------|------------|
| Drivers with BAC of .08 or higher | 37% |
| Weekdays: 12 a.m. to 3 a.m. | 61% |
| Weekends: 12 a.m. to 3 a.m. | 68% |

SPEEDING ON A WEEKDAY BETWEEN 12 A.M. TO 3 A.M.

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Session 5 - Phase One - Vehicle in Motion

Common Symptoms of Alcohol Influence

Blood Alcohol Concentration

- 0.02: Impaired Judgment
- 0.05: Impaired Vision
- 0.08: Poor Coordination
- 0.10: Slowed Reaction
- 0.15: Substantial Impairment

22 MPH OVER THE SPEED LIMIT

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Post Stop Cues

- 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 ≥ .05

ODOR OF ALCOHOLIC BEVERAGE FROM THE DRIVER

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CASE STUDY

- Phase 1:**
 - Friday morning @ 12:20 a.m.
 - 87 mph in a 85-mph zone
 - 11% chance above 0.08 BAC**
 - Increased Impairment & Bad Driving**
- Driving towards highway from downtown Denver
- Phase 2:**
 - Speech: Normal
 - Eyes: Bloodshot
 - Odor: Slight odor from car
 - 20% chance above 0.08 BAC**
 - Attitude: Polite & Cooperative
 - Wearing mask
 - Coming from "downtown"
 - Denies drinking tonight

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CASE STUDY

Phase 1:

- Friday morning @ 12:20 a.m.
- 57 mph in a 35-mph zone
- **Missed heel-to-toe on step 2 of 1st 9 and step 4 of 2nd 9**
- **Improper Turn by taking only one step to turn around lead foot**

Phase 2:

- Speech: Normal
- Eyes: Bloodshot
- Odor: Slight odor from car
- **0.12 g/210L**
- Attitude: Polite & Cooperative

"Enhanced" Phase 2:

- **Counted down a step** after 2 Vague Locations
- Admitted to **1 level of under 20 minutes** after denying drinking
- A " " on a 1-10 scale
- **0.12 g/210L**

Phase 3:

- HGN: **4/8 clues (88%)**
- WAT: **2/8 clues (75%)**
- **Missed heel-to-toe on step 2 of 1st 9 and step 4 of 2nd 9**
- **Improper Turn by taking only one step to turn around lead foot**
- OLS: 0/4 clues
- **Counted to 1025 in 30 seconds**
- Refused PBT

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CASE STUDY

Phase 1:

- Friday morning @ 12:20 a.m.
- 57 mph in a 35-mph zone
- **Missed heel-to-toe on step 2 of 1st 9 and step 4 of 2nd 9**
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- **Counted to 1025 in 30 seconds**
- Refused PBT

**Chemical Test:
Breath Test = 0.102 g/210L
53 minutes after stop**

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CONTACT ME

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