



# Mixed (Cannabis / Alcohol) Impairment Detection Labs

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DIRIGO SAFETY, LLC  
Public Safety Advocates

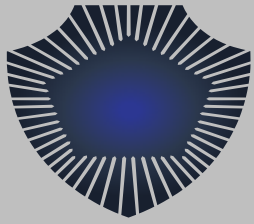
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- ▶ Scot Mattox, Esq.
  - ▶ 25 Year Law Enforcement Career
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  - ▶ Bachelor's Degree in Criminology, Masters Degree in Public Policy and Management, Juris Doctor in Law
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  - ▶ Owner: Dirigo Safety, LLC.



# Who Am I?



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- ▶ Maine Bureau of Highway Safety
  - ▶ Providing *Traffic Safety Expert Technical and Legal Resources* to Maine Law Enforcement and Prosecutors including TSRP
- ▶ Maine Center for Disease Control
  - ▶ Providing Administrative Oversight of the *Enforcement of Underage Drinking Laws* grant funding to Maine Law Enforcement
- ▶ Maine Criminal Justice Academy
  - ▶ Basic Law Enforcement Training Program: *Lesson Plan Writers*
- ▶ Law Enforcement In-Service Training
  - ▶ 75 Classes over 1,000 officers trained since 2017
  - ▶ *Standard Operating Policy* Development
  - ▶ Annual MCJA *Mandatory Training Online*

# Class Agenda

Problems With Screening for Cannabis Impairment Roadside



A Scientific Basis



A New Suggested Cannabis Impairment Detection Protocol



The Dirigo Safety, LLC Mixed Lab process

# The Problem: How do we Screen Roadside for Cannabis Impairment?

There is no per se' limit for cannabis impairment



The SFSTs are not “validated” for cannabis impairment




Cannabis Impairment does not cause HGN




There is very little research done on FSTs for cannabis impairment

# There is no Per Se' Limit of for Cannabis Impairment


THC levels in the blood do not correspond to impairment levels the same way alcohol does



In most cases, more than 70% of the THC is gone from the blood within 2 hours of ingestion while impairment may remain.



While some states have set arbitrary limits, the science doesn't consistently support such limits



Rule #1 "There is No BAC for THC"  
(Stolen from NHTSA)

# SFSTs are not validated for Cannabis Impairment

It's true, the SFSTs were created for alcohol-caused impairment detection

A number of validity studies from both the laboratory and field (some large scale) exist for the use of the SFST to detect alcohol impairment

Very few validity studies exist for the use of SFST to detect cannabis impairment



However, merely because the SFSTs are not validated to detect cannabis impairment ***does not mean they are invalid indicators of cannabis impairment***



# Cannabis Impairment Does Not Cause HGN



- ▶ So why still use HGN?
  - ▶ Because HGN now becomes a pertinent negative;
    - ▶ i.e., it can be used to indicate when you don't have a cannabis-only case
  - ▶ Or it can show poly use

# There is Very Little Research Done

As compared to alcohol, there is very little research done on cannabis impairment.

- Illegal (less funding)

But there is some!

We have two current field studies and several lab studies that show some consistent indicators of cannabis impairment.

# SFSTs Work for CNS Depressant, Stimulants, Narcotics and Cannabis

## An Examination of the Validity of the Standardized Field Sobriety Test (SFST) in Detecting Drug Impairment

Amy J. Porath-Waller, Ph.D., and Douglas J. Beirness, Ph.D.  
Canadian Centre on Substance Abuse

### Abstract

#### Background and Aims

The purpose of this study was to assess the validity of the three components of the SFST — Horizontal Gaze Nystagmus (HGN), One Leg Stand (OLS), and Walk and Turn (WAT) — in identifying drug impairment.

#### Methods

Data from 2,142 completed Drug Evaluation and Classification cases involving central nervous system (CNS) stimulants, CNS depressants, narcotic analgesics (NA), cannabis or no drugs were analyzed using multinomial logistic regression.

#### Results

All four drug categories showed signs of impaired performance on the SFST. On the HGN test, users of CNS depressants were significantly more likely to experience lack of smooth pursuit and distinct nystagmus at maximum deviation compared to those who did not use drugs. On the OLS test, users of all four drug classes were significantly more likely to sway while balancing and use their arms to maintain balance, but were less likely to hop, as compared to drug-free cases. Users of CNS depressants, CNS stimulants and NA were also significantly more likely to put their raised foot down during the test. On the WAT test, users of CNS depressants, CNS stimulants and NA were less likely to keep their balance while listening to the test instructions compared to those who had not used drugs. Users of CNS depressants were less likely to touch heel-to-toe while walking, whereas individuals who had used NA were less likely to take the correct number of steps.

#### Discussion and Conclusions

These findings provide support for the use of the SFST as a screening tool for law enforcement to identify impairment in persons who have used CNS stimulants, CNS depressants, cannabis or NA. This work will have direct and immediate relevance to the training of police officers and will facilitate the enforcement of drug-impaired driving laws.

#### Background

The SFST has been widely implemented across Canada, the United States, and parts of Australia. Individual components of the battery have also been incorporated into the field impairment testing procedures used in many other countries, including the Drug Evaluation and Classification (DEC) program to detect impairment due to drugs (International Association of Chiefs of Police, 1999). Although the SFST is sensitive to alcohol impairment, few studies have assessed the test's ability to accurately detect drug-related impairment. The validity of using the SFST as part of the DEC program has to a large extent been inferred from studies of the overall accuracy of the DEC program to identify persons impaired by drugs other than alcohol. The

Used  
DEC  
cases

- ▶ *An Examination of the Validity of the Standardized Field Sobriety Test (SFST) in Detecting Drug Impairment.* Amy J. Porath-Waller, Ph.D., and Douglas J. Beirness, Ph.D. Canadian Centre on Substance Abuse.
  - ▶ Data from 2,142 completed Drug Evaluation and Classification cases involving central nervous system (CNS) stimulants, depressants, narcotic analgesics (NA), cannabis, or no drugs were analyzed using multinomial logistic regression.
  - ▶ Results:
    - ▶ All four drug categories showed signs of impaired performance on the SFST. These findings provide support for the use of the SFST as a screening tool for law enforcement to identify impairment in persons who have used CNS stimulants, CNS depressants, cannabis, or no drugs.

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## An evaluation of the sensitivity of the Standardised Field Sobriety Tests (SFSTs) to detect impairment due to marijuana intoxication

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**Abstract** The Standardised Field Sobriety Tests (SFST) were developed to test for alcohol intoxication but are currently being used by the State Police of Victoria (Australia) to test for driving impairment associated with drugs other than alcohol. The aim of the present study was to assess whether the SFSTs provide a sensitive measure of impairment following the consumption of a drug other than alcohol: delta-9-tetrahydrocannabinol (THC or cannabis). In a repeated-measures design, 40 participants consumed cigarettes that contained either 0% THC (placebo), 1.74% THC (low dose) or 2.93% THC (high dose). For each condition, after smoking a cigarette, participants performed the SFSTs on three occasions: 5 min (Time 1), 55 min (Time 2) and 105 min (Time 3) after the smoking procedure had been completed. The results revealed that there was a positive relationship between the dose of THC administered and the number of participants classified as impaired based on the SFSTs. Results also revealed that the percentage of participants classified as impaired decreased from Time 1 to Time 3 and that the addition of a new sign, head movements or jerks (HMJ), increased the percentage of participants classified as impaired in both the low and high THC conditions. These findings suggest that impaired performance on the SFSTs is positively related to the dose of THC administered and that the inclusion of HMJ as a scored sign in the SFSTs improves their predictive validity when testing for THC intoxication.

**Keywords** Marijuana · THC · Standardised Field Sobriety Tests · Impairment

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### Introduction

The Standardised Field Sobriety Tests (SFST) are currently being used by the Victorian State Police in Australia to test for driving impairment associated with drugs other than alcohol (Victorian Government Gazette 2000). The importance of such testing is highlighted by the fact that drugs other than alcohol have been detected in as many as 26.7% of drivers killed on Australian roads (Drummer et al. 2003a,b). However, the SFST battery was specifically developed to test for alcohol intoxication (Burns and Moskowitz 1977) and no empirical research has been performed to assess whether the SFSTs provide a sensitive measure of impairment following the consumption of a drug other than alcohol. Such research is required to determine whether the SFSTs are suitable for this purpose.

The SFSTs are tests of psychomotor and cognitive function and comprise the Horizontal Gaze Nystagmus (HGN), the Walk and Turn (WAT) and the One Leg Stand (OLS) tests (Burns and Moskowitz 1977; O'Keefe 2001). The SFST battery has been demonstrated to be a sensitive test of impairment related to blood alcohol concentrations (BAC) of up to 0.08% (Burns and Moskowitz 1977; Burns 1987). Furthermore, the SFSTs have previously been used in combination with physiological tests in order to assess whether individuals are under the influence of drugs (Bigelow et al. 1985; Compton 1986). However, these latter studies were performed in order to validate a 12-step testing program, the drug evaluation and classification program (DECP), rather than the SFST battery alone.

Cannabis (delta-9-tetrahydrocannabinol or THC) is the drug that has most commonly been detected in the specimens of drivers killed on Australian roads (Drummer et al. 2003a,b) and research has revealed that the consumption of THC leads to impaired cognitive and psychomotor performance (Ramaekers et al. 2004) as well as impaired driving performance (Moskowitz 1985; Hansteen et al. 1976; Smiley et al. 1981; Robbe and O'Hanlon 1993; Ramaekers et al. 2000, 2004). Therefore, the aim of the present study

# An evaluation of the sensitivity of the Standardised Field Sobriety Tests (SFSTs) to detect impairment due to marijuana intoxication.

K. Papafotiou, J. D. Carter, C. Stough. *Psychopharmacology* (2005) 180: 107-114

- Impaired performance of the SFSTs is positively related to the dose of THC administered

## Detecting impairment associated with cannabis with and without alcohol on the Standardized Field Sobriety Tests

Luke A. Downey · Rebecca King · Katherine Papafoitou · Phillip Swann · Edward Ogden · Martin Boorman · Con Stough

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ORIGINAL INVESTIGATION

### Detecting impairment associated with cannabis with and without alcohol on the Standardized Field Sobriety Tests

Luke A. Downey · Rebecca King · Katherine Papafoitou · Phillip Swann · Edward Ogden · Martin Boorman · Con Stough

Received: 14 December 2011 / Accepted: 18 June 2012 / Published online: 5 July 2012  
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#### Abstract

**Rationale** Cannabis and alcohol are the most popular drugs amongst recreational users and most prevalent in injured and deceased drivers. The Standardized Field Sobriety Tests (SFST) are commonly used to establish impairment due to drugs and alcohol, but limited empirical evidence exists concerning the combined effects of these drugs on SFST performance.

**Methods** The sample comprised 80 individuals (31 females; 49 males). Age ranged between 21 and 35 years ( $M=26.5$ ,  $SD=5$ ). Forty participants (15 females; 25 males) took part in the low alcohol condition (BAC:  $<0.05\%$ ), and 40 participants (16 females; 24 males), took part in the high alcohol condition (BAC:  $>0.05\%$ ). For each part of the study, two levels of  $\Delta 9$ -tetrahydrocannabinol (THC) were administered (1.8 and 3 % THC) or a matching placebo cigarette (0 % THC) in combination with alcohol.

Performance on the SFST was assessed 30 min post-dosing. **Results** A number of significant differences in SFST performance were identified with 28 % of the sample failing the test (when the head movement and jerks sign was included) when low alcohol and low THC were administered together. When a higher dose of alcohol was administered with a low dose of THC, 38 % of the sample failed the test, and 35 %

also failed when the high dose of alcohol was combined with a higher dose of THC.

**Conclusions** The current results highlight the limited ability of the SFST to identify drug consumption in the absence of any evidence of driving impairment or physiological indicators.

**Keywords** Cannabis · Alcohol · Driving · SFST · RCT · Illicit · THC ·  $\Delta 9$ -tetrahydrocannabinol

#### Introduction

The Standardized Field Sobriety Tests (SFST) are utilized to assess driver impairment in relation to alcohol and illicit drug intoxication. These tests are designed to assess aspects of divided attention, cognitive functioning and psychomotor performance and take the form of specific performance tests, principally the Horizontal Gaze Nystagmus (HGN), the Walk and Turn (WAT) and the One-Leg Stand (OLS) tests (Shaner and Moskowitz 1977). The SFST have been found to be reliable and accurate predictors of blood alcohol concentration (BAC) above and below 0.08 % BAC (Stutter 2006) and moderately predictive of simulated driving impairment in low dose (65.8 % correct)  $\Delta 9$ -tetrahydrocannabinol (THC) and high-dose (76.3 % correct) THC conditions (Papafoitou et al. 2005). Only recently has a controlled study assessed the combined effects of alcohol and THC intoxication upon the tests utilized to determine impairment associated with drugs and alcohol in drivers. This study in heavy THC users indicated that OLS performance was related to THC consumption, and performance upon the HGN test was significantly related to the alcohol and THC combined conditions (Baker et al. 2012). Given the SFST are commonly used to inform law enforcement of a driver's intoxication (Silber et al. 2005; Stutter 2006), and the rising incidence of injured and deceased drivers testing positive to alcohol and THC in their blood system (Dzauzer

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The current results highlight the utility of the HGN test for detecting the presence of alcohol, and the OLS test to accurately identify the consumption of THC. That these tests can identify drug consumption in the absence of any evidence of driving impairment or physiological indicators (blood, saliva or breathalyser tests), even at the relatively low levels observed in the current studies, supports their continued use to identify driver's whose driving under the influence of drugs is endangering theirs and other driver's lives.



# “The FSTs prove to be sensitive to impairment by marijuana”

Kari Declues<sup>1</sup>, M.S.; Shelli Perez<sup>1</sup>, M.S.; and Ariana Figueroa<sup>1</sup>, M.S.

## A 2-Year Study of D 9-tetrahydrocannabinol Concentrations in Drivers: Examining Driving and Field Sobriety Test Performance\*†‡

**ABSTRACT:** From November 1, 2010 through November 30, 2012, 1204 whole blood samples were confirmed to contain THC alone or in combination with other drugs out of nearly 5000 Orange County, California, drivers suspected of driving under the influence of drugs. The goal of this study was to examine police reports and drug recognition expert evaluations of THC-positive samples within this 2-year time frame to determine whether there is a correlation between whole blood THC concentrations and field sobriety tests performance on DRE and non-DRE evaluations. The FSTs prove to be sensitive to impairment by marijuana although as suspected, the findings of this study did not find a correlation between performance on field sobriety tests and the concentration of THC tested in whole blood samples. Driving behaviors were also examined and found to be similar to those seen in alcohol impairment. Future studies examining DRE findings are needed to confirm the results.

**KEYWORDS:** forensic science, marijuana, field sobriety tests, driving, DUID, DRE

Driving under the influence of drugs (DUID) has become a growing issue nationwide and likewise in Orange County, California. Nationally, the amount of alcohol related crashes has been on the decline, but drug related crashes have increased (1,2). According to the 2007 National Roadside Survey, approximately 14% of nighttime drivers are positive for drugs in blood (3,4). In Orange County, California, nearly 5000 drivers were suspected of DUID from November 1, 2010 through November 30, 2012, which is more than double the number from the same time frame 10 years prior.

In 2012, the National Survey on Drug Use and Health reported that marijuana use in the United States has increased since 2007 to 13.9 million current (past month) users, aged 12 years and older. This increase in ingestion is partially due to legalization of marijuana for recreational use in Washington and Colorado, along with the decriminalization in many other states. This increase makes marijuana the most common illicit drug in America (2). After alcohol, marijuana was also the most common drug among drivers fatally injured in a Washington study where 12.7% were positive for the psychoactive  $\Delta^9$ -tetrahydrocannabinol (THC) or its inactive

metabolite, 11-carboxy-THC (carboxy-THC) (5). These statistics reflect the national shift toward the social acceptance of marijuana use which creates an increased risk of individuals operating motor vehicles while impaired.

Driving a motor vehicle is a complex psychomotor and divided attention task. A dose-dependent relationship has been demonstrated in experiments testing psychomotor function and cognition, where the potential for impairment increases as THC concentration increases. In 1999, Robie and O'Hanlon reported that marijuana consumption caused an increase in the standard deviation of lateral position (weaving), which is a measure of road tracking. The study also found that THC impaired car following, critical tracking, stop signal tasks, and executive functioning (6). The authors found that "THC induced performance impairments were severe and clinically relevant when compared to alcohol effects on the same tasks" (7). Studies have also shown that THC affects judgment and decision making as well as memory retrieval and learning (8). These are critical skills necessary for safe driving.

Additionally, epidemiological studies have shown that marijuana increases the likelihood that a driver will be involved in an unintentional motor vehicle crash. As THC concentrations increase in the blood, the odds ratio for crash risk also increases (9–11). One study revealed that a THC concentration of 2 ng/mL or greater in whole blood significantly increased the likelihood of having an accident, ultimately demonstrating a concentration dependent crash risk (12). Researchers also found that crash risk was more elevated for men. A study from Australia that analyzed crash risk and culpability found that THC concentration of 5 ng/mL or greater increased the odds ratio to 6.6, which is similar to odds ratios of BAC 0.15% (w/v) and above (13). A meta-analysis involving the review of nine studies found an odds ratio of 1.92 for driving under the influence of marijuana at any concentration (10).

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\*Presented in part at the California District Attorney Association's Drug Impaired Driver Training for Law Enforcement and Prosecutors (2013), the San Diego Marijuana Initiative (2013), and the Orange County Marijuana Summit (2013).

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‡The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the State of California or the National Highway Traffic Safety Administration.

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## TECHNICAL NOTE TOXICOLOGY

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## A 2-Year Study of D 9-tetrahydrocannabinol Concentrations in Drivers: Examining Driving and Field Sobriety Test Performance\*†‡

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Available online at: [onlinelibrary.wiley.com](http://onlinelibrary.wiley.com)

## Drug Recognition Expert (DRE) examination characteristics of Cannabis Impairment

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### ABSTRACT

**Background:** The Drug Evaluation and Classification Program (DECP) under the influence (DUI) cases to help determine category(ies) of impairment. Cannabis, one of the categories, is associated with approximately 10% of all DUI cases. To determine the most reliable DECP metrics for identifying cannabis impairment, a study was conducted. **Methods:** We evaluated 302 toxicologically-confirmed (blood  $\Delta^9$ -tetrahydrocannabinol) cannabis-only DECP cases, wherein examiners successfully identified impairment. Data (302 non-impaired individuals), Physiological measures, pupil size, heart rate, and psychophysical tests (one leg stand [OLS], walk and turn [WAT], finger to nose [FTN], and Romberg Balance [MRB]) were included. **Results:** Cases significantly differed from controls ( $p < 0.05$ ) in pupil size (elevated), and pupil size (dilated). Blood collection time after arrest was significantly longer. No significant differences were detected between cases and controls for OLS, WAT, FTN, and MRB. The FTN best predicted cannabis impairment (sensitivity, specificity, and efficiency  $\geq 87.1\%$ ) utilizing  $\geq 3$  misses as the deciding criterion for all diagnostic characteristics. Other strong indicators included OLS, WAT, MRB, and rebound dilation. Requiring  $\geq 2/4$  of:  $\geq 3$  FTN misses, MRB eye lid tremors, OLS, and WAT produced the best results (all characteristics  $\geq 96.7\%$ ). **Conclusions:** Blood specimens should be collected as early as possible. A blood THC per se cutoff showed limited relevance. Combined OLS, WAT, FTN, and MRB exams produced the best cannabis-impairment indicators.

increased in recent decades, even as driving under the influence (DUI) of alcohol decreased (Berning et al., 2013–2014 National Roadside Survey, drug impairment among nighttime drivers increased to 20.0% from 15.0% (Berning et al., 2015). In an effort to combat drugged driving, the Drug Evaluation and Classification Program (DECP) was established by the Department of Transportation National Highway Traffic Safety Administration and the Association of Chiefs of Police (Richman et al., 2013a). The DECP is a standardized 12-step procedure combining physiological, observational, and performance-based evidence to formulate an opinion on whether a driver is impaired by alcohol or drug impairment. The results of standardized tests (horizontal gaze nystagmus, walk and turn [WAT] tests, and one leg stand [OLS]) and blood alcohol concentration [BAC] (Stuster et al., 2013) are used to determine if an arrest is made and a drug test is requested when the suspect shows signs of impairment. A DRE is a police officer certified to conduct examination of a driver's drug influence evaluation occurs at the location as soon as possible (Richman et al., 2013b). The standardized 12-step procedure combines physiological, observational, and performance-based evidence to formulate an opinion on whether a driver is impaired by alcohol or drug impairment.

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# What we do know: “The 302 Study”

## The Future of Cannabis Suspected SFST Testing?

- ▶ Drug Recognition Expert Examination Characteristics of Cannabis Impairment. Accident Analysis & Prevention. Vol. 92, July 2016, Pages 219-229.
  - ▶ 302 DRE marijuana only cases across the US with toxicological confirmations. Cannabis Impairment: Require at least 2 of the below 4:
    - ▶ OLS (sway and at least one more clue)
    - ▶ WAT (2 or more clues)
    - ▶ Finger to Nose (more than 3 misses)
    - ▶ Modified Romberg Balance (eyelid tremors)

## Study Comparisons – Eye Indicators

Indicator	302 DRE Case Study	2-Year CA Study
HGN (4 or more clues)	3%	9%
VGN	0%	3%
LOC	79%	86%
Rebound Dilation	71%	88% (Included Hippus)
Dilated Pupils	58%	64%
Bloodshot Eyes (Reddening)	90% (Reddening & Bloodshot)	94%



## Study Comparisons – Psychophysical Tests

Indicator	302 DRE Case Study	2-Year CA Study
W & T (2 or more clues)	81%	87%
OLS (2 or more clues)	56%	65%
FTN (4 or more misses)	72%	64%
MRB (Sway)	81%	Not Reported

- ▶ We know from the 302 and 2-year CA study, that adding some eye indicators along with MRB and FTN to the SFST may give us additional evidence of cannabis impairment.
- ▶ However, when should we add these?

So now what...?

# SFSTs are not Given in a Vacuum

If the SFSTs are being administered,  
there should be RAS

- RAS should give an indication of alcohol or drugs

Phase ONE

- Vehicle in motion, accident, call for service, etc.

Phase TWO

- Plain sight, hearing, smells
- Consumption history
- Distracting Questions
- Admissions

Don't lost  
sight of the  
goal

## Probable cause for arrest

- Impairment
  - Slightest degree
  - To safety control
- A deficient in the ability to divide attention is impairment.

You cannot prove, and these tests are not designed, to definitively determine impairment at roadside

**Totality of the circumstances!**

# Field Sobriety Tests: Use “A” through “C” if alcohol suspected; add “D” and “E” when cannabis is suspected.

## A. The Eyes

- ▶ HGN: Not likely present in cannabis only cases, suspect other causes if observed
- ▶ VGN: Not likely present in cannabis only cases, suspect other causes if observed
- ▶ LOC: Present in 78% of the cases
- ▶ Pupil Size: Dilated but may be normal. Suspect other causes if constricted.
- ▶ Redness, droopy, watery: in 95% of the cases

## B. **WAT**: 2 or more clues

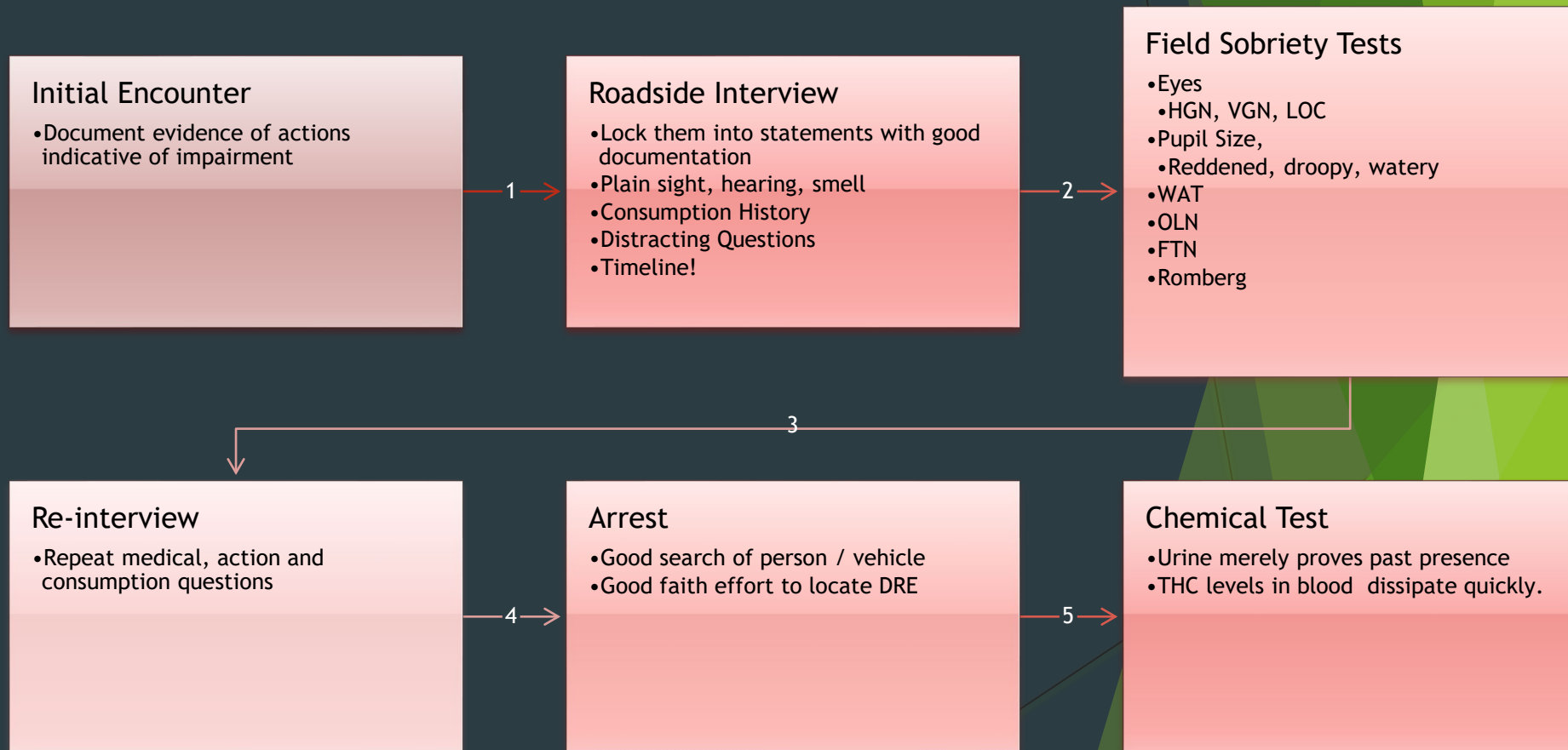
## C. **OLS**: Sway and 1 other clue

## D. **Romberg**: eyelid tremors

## E. **Finger to Nose**: 3 or more misses; eyelid tremors

*The “302 Study” suggests a positive finding of two or more of the clues in **red** is an indication of Cannabis impairment.*

# Suggested Cannabis Impairment Investigation Protocol



# Dirigo Safety's Unofficial Field Study

# Dirigo Safety, LLC Mixed (Cannabis / Alcohol) Impairment Detection Labs

- ▶ Dirigo Safety, held the first Mixed Lab in January of 2018. Since then it has held 19 labs between Maine, New Hampshire, and Massachusetts.
- ▶ The classroom training session is 6 hours long, taught by drug recognition experts and attorneys, and covers these objectives:
  - ▶ The Elements of The Law and Legal Updates
  - ▶ Medical v. Recreational
  - ▶ Marijuana v. Hemp
  - ▶ Understanding Culture and Common Use Trends
  - ▶ The Issues of Use v. Impairment
  - ▶ Impairment Detection and Investigation Skills for Impaired Driving Cases
    - ▶ An overview of recent scientific studies on field sobriety testing
  - ▶ Chemical Testing Concerns



# Dirigo Safety Mixed, LLC (Cannabis / Alcohol) Impairment Detection Labs

- ▶ The training session is open to all officers (not just ARIDE or DREs).
- ▶ The *Impairment Detection and Investigation Skills for Impaired Driving Cases* section incorporates investigative techniques recommended in the article “Drug Recognition Expert (DRE) examination characteristics of cannabis impairment” by Rebecca Hartman, Jack Richman, Charles Hayes, and Marilyn Huestis.
- ▶ Scot Mattox has amended the SFST Investigation Protocol interweaving the techniques in the Hartman, et. al article to produce an alcohol and cannabis impairment detection protocol that officers can use on the street.
- ▶ The lab practical portion (which follows the classroom portion) is about 2 hours long.

# The Impairment Detection Practical Exercise:

- ▶ Volunteers are all adults of various ages and various use patterns. They consume different types of cannabis including flower, concentrates, and edibles.
- ▶ Most volunteers have participated in more than one lab, but new recruits are used when possible.
- ▶ Volunteers consume the substance of their choice. For each lab, there are 6 volunteers. Here is what each volunteer consumes: (1) smokes; (1) concentrate; (1) edible; (1) uses cannabis and a low dose of alcohol; and (1) uses only alcohol; and (1) is a control.
- ▶ Volunteers are screened for history and medical conditions (criminal history and some medical conditions are rejected).
- ▶ Volunteers self-dose until they are comfortable or report impairment. The kind and amount of cannabis is recorded. There are no chemical tests, but we do use a PBT for those that consume alcohol.
- ▶ A DRE screens the volunteers prior to the start of the exercise and records his or her opinion on impairment.

# The Results So Far:

- ▶ Officers were asked to complete worksheets to record the number of various clues they saw when administering the tests. Officers were not given any background information about the individual consumption of the volunteer. If asked, volunteers were told not to reveal what they used.
- ▶ At the completion of the worksheet, the officers were also asked:
  - ▶ (1) Is the volunteer impaired?
  - ▶ (2) If so, on what substance?
    - ▶ (alcohol only, cannabis only, alcohol and cannabis combined)
- ▶ If the volunteer self-reported impairment *and* the DRE made a (separate) opinion of impairment, *or* the volunteer registered over 0.08 on the PBT, that volunteer was considered impaired for the purposes of this exercise.

# The Results So Far:

- ▶ On question (1):
  - ▶ Class attendees agreed with the DRE about impairment **86% of the time**.
  - ▶ Class attendees correctly identified the control **93 % of the time**.
- ▶ On question (2):
  - ▶ Class attendees correctly identified the impairing substance **57% of the time**.
    - ▶ Most errors occurred when reporting one substance or the other when in fact the volunteer was using both.
- ▶ Of the 19 labs, 4 were for prosecutors only (and thus merely demonstrative), 1 lab used only medical marijuana users (in New Hampshire), and the worksheets for 1 lab were accidentally lost. All of those results have been excluded from the above.

# Critiques:

No chemical testing done. Although we have witnessed (and admitted) consumption we have no idea what the actual amount of THC is (in both the product and the volunteer) at the time of the lab exercise.

Repeated volunteers learn the SFSTs and perform better in subsequent exercises.

Small Sample Size

Self-Selection

- Repeat volunteers

Instructor Bias

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