

Marijuana Impairment

- ▣ Jason Marshall
- ▣ DRE State Coordinator
- ▣ UHP training, Breath Alcohol Technician
- ▣ jmarshall@Utah.gov
- ▣ 435-650-4749
- ▣ Special thanks to Chuck Hayes (IACP) and Oregon DECP program.



Objectives



- ❑ Understand the different ways marijuana & other drugs impairs ones ability to drive (especially compared to traditional alcohol impairment).
- ❑ Learn about additional FST'S & observable signs and symptoms that a persons under the influence of marijuana shows.
- ❑ Learn about current trends.
- ❑ Improve your knowledge and abilities to try DUI marijuana cases and interpreting crime lab reports

Marijuana Acceptance & Culture

\$\$ A lot of false information out there \$\$

April is Alcohol Awareness Month

Beer Wine Safer



Don't just drink. Think.

MarijuanalsSafer.org



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14 OLYMPIC GOLD MEDALS
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Unlike heavy tobacco smokers, heavy marijuana smokers exhibit no obstruction of the lung's small airway. That indicates that people will not develop emphysema from smoking marijuana.
For more information visit clubfi.com/marijuana

Don't let the government fool you

LEGALIZE MARIJUANA
Adapted by the Marijuana Policy Project



I prefer **marijuana** over alcohol because it's **less toxic**, so there's **no hangover**.

Why should I be punished for making the safer choice?

On November 5th, vote **YES** on Question 2

www.MarijuanalsSafer.org

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LET'S BE BLUNT,
IT'S GOOD.



That marijuana kills brain cells is based on a report dating back a quarter of a century that has never been supported by any scientific study. Medical tests currently used to detect damage in humans have found harm from marijuana from long term high-dose use. For more information visit clubfi.com/marijuana

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2015 NHTSA SURVEY

- ▣ 2007
 - 8.6% of weekend night time drivers tested positive for THC.
- ▣ 2013-2014
 - 12.6% of weekend night time drivers tested positive for THC



Marijuana and Driving

- 65% of heavy drinkers also smoke marijuana
 - Additive effect with alcohol
 - Low dose marijuana + low dose alcohol (.04 BAC) = .09 BAC
 - Moderate marijuana + low dose alcohol = > .12 BAC
 - High marijuana + low dose alcohol = inability to stand
 - Major Impairment lasts 3-4 hours- Impaired up to 24 hours
 - Risk factor in fatal crash
 - Alcohol alone 13 times higher than a sober person
 - Alcohol & Marijuana 24 times higher than a sober person
- Marijuana appears in urine and blood 3 - 5 times more frequently in fatal driving accidents than in the general population. (SAMSHA, 1999)



What does a high person look like???

- ▣ MENTAL SIGNS????

- ▣ PHYSICAL SIGNS????



- ▣ I equate it at times to trying to describe what salt tastes like. It is a difficult task.

Does it look like this?



BOOZE vs BUD

Mental vs Physical Impairment

- ▣ There is a “disconnect” with the way most Police Officers want to relate impairment under alcohol with impairment under Marijuana.....
 - There is no way to equate .08 alcohol = .08 Marijuana.
 - Marijuana affects the body & brain in a completely different way than alcohol.....and even more differently when its combined with alcohol or other drugs.
 - THC content in marijuana varies greatly.



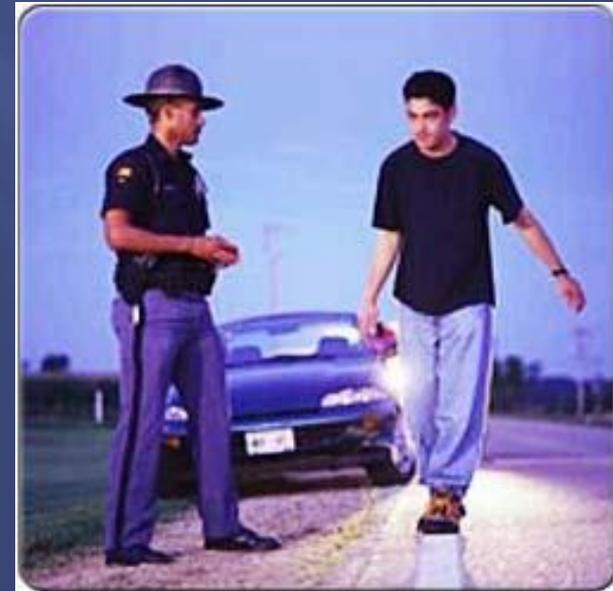
BOOZE vs BUD continued.....

- ▣ Marijuana binds to receptors in the brain and other parts of the body affecting short term memory, coordination, time and distance perception, and unconscious muscle movements. (mental impairment is primary).
- ▣ Alcohol and other drugs (generally) include more obvious physical impairment.
- ▣ A person impaired by marijuana will NOT exhibit the same signs as a person drunk on alcohol.

Mental vs Physical Impairment

- ▣ SFST'S – What do the jurors typically focus on???
 - ▣ Why?

- ▣ Mental Aspects
 - Window contact & observations
 - Documents & distraction questions
 - Following SFST directions
 - Appropriate reactions



Before we go into details on the signs of impairment it is necessary to learn more about marijuana so that we can fully understand how it effects the body



Marijuana Potency

- ▣ Less than 4% in 1984
- ▣ Over 10% in 2008
- ▣ Over 30% with plant substance in 2013
- ▣ Up to 99%, Butane honey oil & hash oils
 - aka butter, crumble, shatter, etc.



CANNABIDIOL (CBD)

- Cannabis compound that has significant medical benefits (synthesized into Marinol etc.)
- Does not make people feel “stoned”
- Can actually counteract the psychoactivity (impairment) of THC.



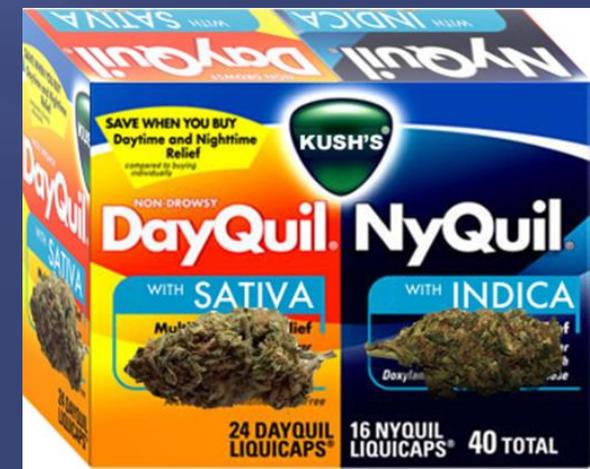
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- ▣ INDICA: *Primarily used to treat physical symptoms*
 - Higher CBD than THC (couch lock)

- ▣ SATIVA: *Primarily used to get “high”*
 - Higher THC than CBD (giggles)



So how long does it last?

- ▣ Smoked
 - Peak: 0-30 minutes
 - High experience: 1-3 hours
 - Effects return to baseline: 3-6 hours
 - Residual effects: Up to 24 hours
- ▣ Oral/Edible
 - Peak: 1-3 hours
 - High experience: 4-8 hours
 - Effects return to baseline: dose dependent
 - Residual effects: dose dependent

Source DRE DECP

So how long does marijuana impairment really last?

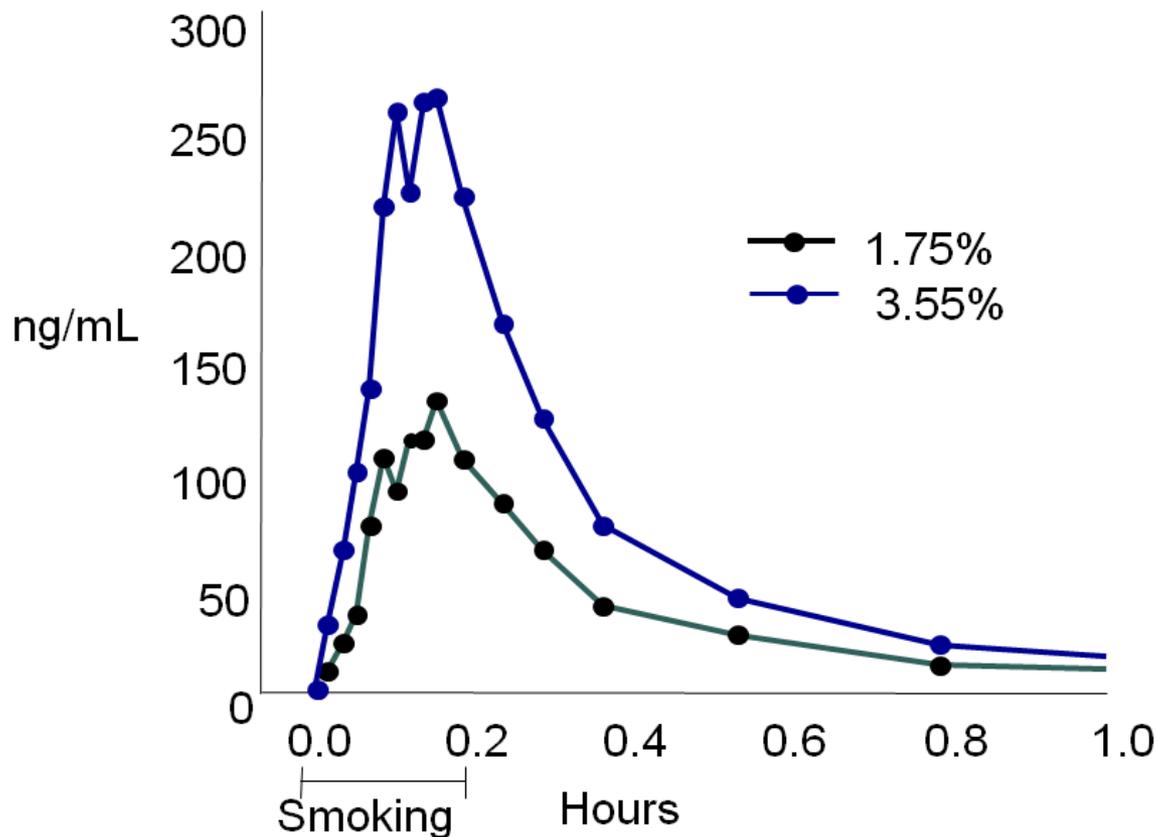


- ▣ Depends greatly on:
 - **Frequency of use**
 - Dose
 - **Potency**
 - Method of ingestion (smoked, oral ingestion)
 - Gender, weight, metabolism, empty/full stomach
 - Poly Drug use

- *REMEMBER: All previous studies were done with marijuana with much lower levels of THC 3-5%.*

Cannabinoid Pharmacokinetics

Smoked THC Time-Concentration Curve



- THC concentrations fall:
- To about 60% of their peak within 15 minutes after the end of smoking.
- To about 20% of their peak 30 minutes after the end of smoking.

Latest Marijuana Research

- ▣ Whole blood THC concentrations persist multiple days after drug discontinuation in heavy chronic marijuana users (*CARBOXY-THC*)(*non impairing*)(*not active*)
- ▣ After 3 weeks of abstinence, chronic daily marijuana users showed observable impairment compared to occasional marijuana users

- HYDROXY-THC: The main psychoactive metabolite of THC
 - *Makes you high & impairs driving*
- CARBOXY-THC: The main secondary metabolite of THC
 - It **IS NOT** active (thus not impairing)
 - It **IS** indicative of recent use (although not factored into impairment)

Methods of Detection: Blood

- Effective to prove that active THC is in the person's system at the time of the blood draw.
- Immediately after a person smokes marijuana there is a drastic increase in THC in the blood



What does this mean for us?

- ▣ Dissipation
- ▣ Evidence collection
- ▣ Impairment???
- ▣ Remember: Impairment remains even when active metabolite leaves blood



Standard DUI Process

- ▣ Vehicle in Motion
- ▣ Stop
- ▣ Observations at Window
- ▣ Field Sobriety Tests/ARIDE
- ▣ Arrest Decision
- ▣ Breath Test (Under .08% plus impairment)
- ▣ DRE
- ▣ Urine Sample



Recommendations for fatal & serious physical injury crashes

- ▣ Get blood...yesterday (exigent & warrant)
- ▣ Get a DRE on scene to make observations ASAP
- ▣ Record Blood pressure and pulse rates of subject at the scene & hospital
- ▣ Video, Video, Video
- ▣ Make observations of pupil size & other indicators



INDICATORS CONSISTENT WITH DRUG CATEGORIES							
MAJOR INDICATOR	ONE OR MORE CATEGORIES						
NERVE GAZES	PRESENT	NONE	NONE	PRESENT	NONE	PRESENT	NONE
VERTICAL REFLEXION	PRESENT	NONE	NONE	PRESENT	NONE	PRESENT	NONE
LACK OF COORDINATION	PRESENT	NONE	NONE	PRESENT	NONE	PRESENT	PRESENT
PUPIL SIZE	NORMAL OR	DILATED	DILATED	NORMAL	CONTR. PUPILS	NORMAL OR	DILATED OR
REACTION TO LIGHT	SLOW	SLOW	NORMAL OR	NORMAL	STYERON DILATE	SLOW	NORMAL
PUPIL REACT	CONTR. OR	UP	UP	UP	DOWN	UP	UP
BLOOD PRESSURE	DOWN	UP	UP	UP	DOWN	UP/DOWN	UP
RYTHM	NORMAL	UP	UP	UP	DOWN	UP	NORMAL
TEMPERATURE	NORMAL	UP	UP	UP	DOWN	UP	NORMAL

*High scores for that particular individual

FOOTNOTES FOR INDICATORS CONSISTENT WITH DRUG CATEGORIES
These indicators are those most consistent with the category. Keep in mind that there may be variations due to individual reasons, dose taken and drug interactions.

FOOTNOTE	
1.	SOMA, Quaaludes usually dilate pupils.
2.	Quaaludes and ETOH may elevate.
3.	Certain psychedelic amphetamines cause slowing.
4.	Normal but may be dilated.
5.	Down with anesthetic gases, up with volatile solvents and aerosols.
6.	Pupil size possibly normal.



Driving Clues for Marijuana

- ▣ Effects on driving include:
 - Lane Weaving
 - Slow Reaction times
 - Difficulty with divided attention tasks
 - Tracking
 - Information processing and perception
 - Time and distance perception issues.
 - ▣ Stop lines
 - ▣ Red lights
 - ▣ Following distance
 - ▣ Speeding



MY FAVORITE FIVE:

- ▣ Muscle, eye lid, and body tremors
- ▣ Dazed face “stoned look”
- ▣ Relaxed inhibitions & Increased appetite
- ▣ MJ debris in mouth/green tongue
- ▣ Reddened conjunctiva





Common Signs and Symptoms

- ▣ Disorientation
- ▣ Euphoria
- ▣ Relaxed Inhibitions
- ▣ Altered time and distance perception
- ▣ Lack of concentration
- ▣ Impaired memory & comprehension
- ▣ Jumbled thought formation
- ▣ Drowsiness
- ▣ Mood changes

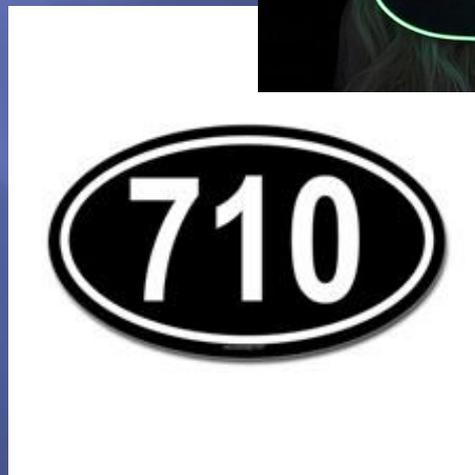
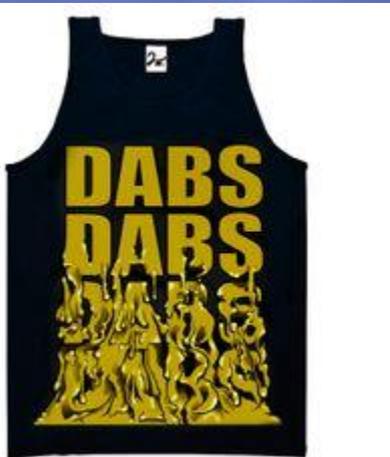
Common Signs and Symptoms Continued.....

- ▣ Raised taste buds
- ▣ Body tremors
- ▣ Eyelid tremors
- ▣ Red bloodshot eyes
- ▣ Reddened Conjunctiva
- ▣ Flecks of green vegetation or burnt residue in the mouth.
- ▣ Possible coating on the tongue
- ▣ Dilated pupils (less with chronic users)



Personal observations continued..

- ▣ Clothing, bumper stickers, key chains, etc.
 - “420” & “710”
 - Marijuana leaves
 - Medical marijuana green cross



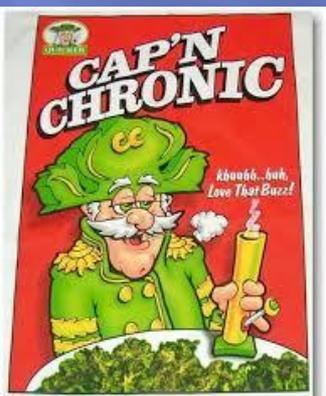
Roadside Investigation

- ▣ Document distraction questions???
- Where are you coming from?
- Where are you going?
- Date of birth?
- Current address?

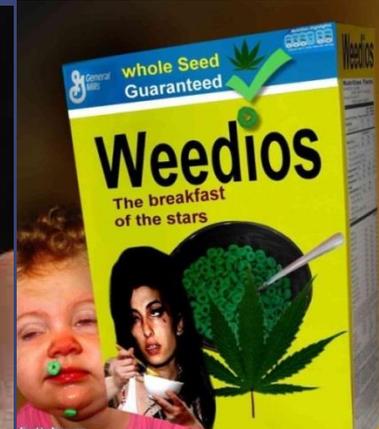


Questions to ask during your investigation....

- ▣ Have you used any marijuana or marijuana products?
 - What did you use to smoke or vaporize it?
 - Dabs? Budder? Shatter? Oil?
 - Did you consume any edibles? How much? When?
 - Sativa, Indica, or Hybrid???
 - Why do you use it?



Close-up of the front graphic.



Questions to ask during your investigation....

- What strains do you use...put the names in your report
- Describe the high
- Based on a scale of 1-10, 1 being completely sober and 10 being as baked/high/stoned as you have ever been, what are you at now?
- Do you think your safe to drive now/when you were driving?

Medical Marijuana

- ▣ What conditions do you take marijuana for?
- ▣ When is the last time you took your “medicine”?
- ▣ How do you take your medicine?
- ▣ How often do you take your medicine?
- ▣ What does it do for you?
- ▣ Did your doctor recommend you smoke it?
 - No doctors recommend this.
 - ▣ Ask why they didn’t follow their doctors recommendations.

DABBING

Weed Oil or “Honey”



- ▣ Major resurgence due to tolerance & need for a “better high”
- ▣ Butane method most popular
 - Solvent with heat extracts the THC -30% and higher
- ▣ Recipes & cook books on web. (YOU-TUBE)
- ▣ Duration of high 6 hours and maybe longer
- ▣ Intensity of high greater due to high THC
- ▣ Can also be smoked, eaten, vaporized.



Vaporizers & Dabbing

- Wax
- Budder/butter
- Shatter
- oil dabs
- BHO
- Cannabutter
- Crumble
- Sativa BHO
- Hashish oil



- ▣ Smells like popcorn when vaporized



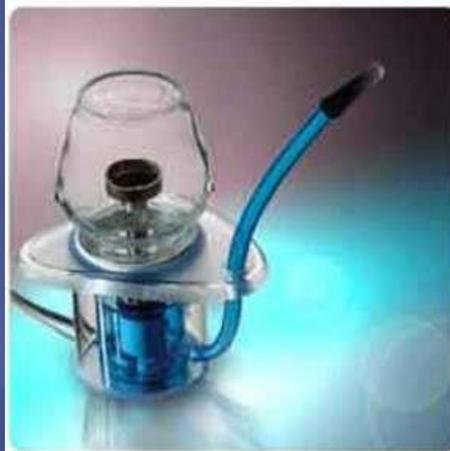
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BHO production

- ▣ <https://youtu.be/2i464hZm4kM> vice
- ▣ <https://www.youtube.com/watch?v=3TMIhuWQiSA>
- ▣ <https://www.youtube.com/watch?v=ngAkaQXTPfo>
 - ▣ dabumentary

Vaporizers

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Marijuana Food Products



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SFST'S

- ▣ Always run your normal battery of standardized tests

- ▣ But.....

EYES.....LOOK AT THE EYES.....

Consider the following tests on cases where marijuana is suspected:

Pupil Size



	1.0	•
N DRUG	1.5	•
CLASSIFICATION	2.0	•
GRAM	2.5	•
	3.0	•
TAL GAZE	3.5	•
GMUS	4.0	•
ooth pursuit	4.5	•
n deviation	5.0	•
of onset		
NYSTAGMUS		
IVERGENCE		

Normal Range Pupil Size

▣ Normal ranges:

- Room Light: 2.5mm - 5.0mm

- Near Total Darkness: 5.0mm – 8.5mm

- Direct light: 2.0mm – 4.5mm



WITH MARIJUANA

- ▣ **“Generally” Pupils should be dilated with recent marijuana use**

however.....

Most chronic users pupils will not dilate



Lack of Convergence

(LOC) is the inability of an individual to cross their eyes when focusing on a stimulus as it is moved towards the bridge of their nose



Normal Convergence

- A distance approximately two inches (2”) from the bridge of the nose
- If the eyes converge (cross) when the stimulus is approximately two inches from the bridge of the nose, the Lack of Convergence is “not present”

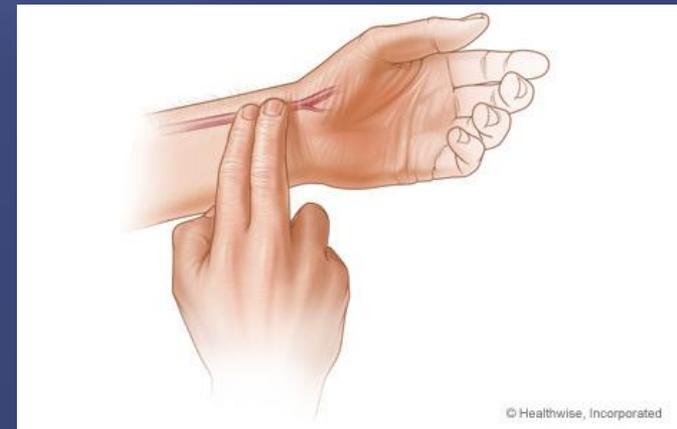


Drug Categories That Usually Induce LOC

- CNS Depressants
 - Inhalants
 - Dissociative Anesthetics
 - Cannabis
- ▣ Remember: 30-40% of the population can't cross their eyes
- Always ask first...can you normally cross your eyes.

Pulse Rate

- ▣ Normal Range Pulse Rate: 60-90 BPM
 - Marijuana will cause the pulse rate to increase
 - Check pulse for 30 seconds then double the result
 - ▣ Use pointer & middle finger-never thumb
 - ▣ Maintain officer safety



Drug Symptom Matrix

	CNS Depressant	Inhalants	PCP	Cannabis	CNS Stimulants	Hallucinogens	Narcotic Analgesics
HGN	Present	Present	Present	None	None	None	None
VERTICAL NYSTAGMUS	Present* (High Dose)	Present* (High Dose)	Present	None	None	None	None
LACK of CONVERGENCE	Present	Present	Present	Present	None	None	None
PUPIL SIZE	Normal (1)	Normal (4)	Normal	Dilated (6)	Dilated	Dilated	Constricted
REACTION to LIGHT	Slow	Slow	Normal	Normal	Slow	Normal (3)	Little to none visible
PULSE RATE	Down (2)	Up	Up	Up	Up	Up	Down
BLOOD PRESSURE	Down	Up/Down (5)	Up	Up	Up	Up	Down
BODY TEMPERATURE	Normal	Up/Down/ Normal	Up	Normal	Up	Up	Down

1. Soma and Quaaludes usually dilate pupils
2. Quaaludes and ETOH may elevate
3. Certain psychedelic amphetamines may cause slowing
4. Normal but may be dilate
5. Down with anesthetic gases, up with volatile solvents and aerosols
6. Pupil size possibly normal *High dose for that particular individual

Modified Romberg Balance Test

- Checks a subject's internal clock, balance and presence of tremors (eye and body)
- Ensure the test is conducted on a level surface



Three Parts of Modified Romberg Balance Test

- Estimate the passage of 30 seconds
- Observation of tremors
- Observation of sway

Finger to nose test

- ▣ Have subject stand with feet together, hands at side
- ▣ Have subject close hands, rotate palms forward, and extend the index fingers from the closed hands.
- ▣ Tell subject to use the tip of their finger to the tip of their nose- then demonstrate what this means.



Finger to nose test continued.

- ▣ Tell subject they will be given a series of commands ie- when I say “left” I want you to touch the tip of your left finger to the tip of your nose, then bring it right back down. (DEMONSTRATE)
- ▣ Have the subject tilt their head back and close their eyes
- ▣ **Always** use the following sequence: L, R, L, R, R, L



The finger-to-nose test.

Evaluating the finger to nose

- ▣ Document where the subject touched their nose/face
- ▣ Document:
 - Searching
 - Dragging
 - Pad of the finger
 - Holding

STUDIES

- ▣ [Hayes-DRE Cannabis Correlation Study CDAA 2015.pdf](#)
- ▣ [Armentano 2012 summary of other studies physco motor.pdf](#)
- ▣ [Cannabis Intoxication CO - Citek \(002\).pdf](#)
- ▣ [CCSA-Cannabis-Regulation-Lessons-Learned-Report-2015-en.pdf](#)
- ▣ [Cannabis Psychomotor Chronic Bosker 2013.pdf](#)
- ▣ [dre examination characteristics of cannabis impairment \(1\).pdf](#)

GREEN LAB

Understanding Legal Marijuana Chris Haslor

<http://understanding420.com/Default.aspx?Type=2>

QUESTIONS?

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