

"What drug is my  
  
student on?"

2016  
Victory Over Violence

  Bruce R. Talbot Associates  
[http:// drugrecognition.com](http://drugrecognition.com)

Sergeant Bruce R. Talbot retired in June of 2002 after 26 years of police service in the Chicago metropolitan area. He earned a bachelor of science degree from Southern Illinois University and a Master of Public Administration degree from Roosevelt University in Chicago.

Sergeant Talbot is recognized as an expert in the area of Gateway Drugs and teaches on the topic of drug abuse throughout the United States and Canada. He has been qualified as an expert witness in criminal court trials in Illinois and Texas, and has testified as an expert witness before two United States Senate committees. Sergeant Talbot is also an approved provider by the U.S. Center for Substance Abuse Prevention.

Sergeant Talbot has appeared on the NBC "Today Show," CNN "Talk Back Live", CBS "Eye On America", ABC "A Closer Look" and international programs including the BBC "Science Frontiers," and the CBC "Market Place." He has been featured in major newspapers such as The New York Times and Chicago Tribune. He also authored a feature story in the Saturday Evening Post and has co-authored scientific research on the effectiveness of police enforcement to control adolescent gateway drug use published in the Journal of Applied Behavior Analysis, November 1999. In June of 2000, Sergeant Talbot was named "Police Officer of the Year" by the Illinois State Crime Commission.

Other drug programs are available on our web site, <http://DrugRecognition.com>.

***A full-day version of this class is available with a legal review, drug testing options, and sample policy and procedures. The full-day class is team taught with school attorney Dan Murphy or Mike Dishman.***

## What is a drug?

**“Any substance that causes impairment”**

- + Controlled substances.
- + Prescription medicines.
- + Over-the-counter.
- + Natural intoxicants.
- + Impairing chemicals.



*What does your policy say?*

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The definition of the word drug, for the purposes of school substance abuse detection and enforcement is different from a medical or even a layman's definition. A doctor would say a drug is a chemical substance used to cure or prevent disease, or to improve deficient physical performance. A police officer would say a drug is any illicit substance listed in state or federal statutes as a “controlled” or “scheduled” substance. A doctor would not claim model airplane glue to be a drug, nor would a police officer arrest a person for possession of glue. However, in a school setting, model airplane glue is a drug, because it is a substance which can produce intoxication and even death.

Besides man-made chemicals, there are many natural plant and animal substances which can produce intoxicating effects that are not listed under federal or state controlled substances statutes. Certain species of southwestern toad can secrete a substance which will produce vivid hallucinations when dried and smoked. Morning Glory seeds can be abused for their intoxicating effects and few states list them as controlled substance and students have been hospitalized after overdosing in school on DXM, legally available in Robitussin® cough syrup.

Many of these uncontrolled intoxicants will NOT be detectable on a urine drug screen. Your school policy should not be limited to illegal drugs or misuse of prescription drugs, but should use the term **“any intoxicating substance.”**



**A negative urine test NEVER means “drug-free!”**

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In this video clip, an Oklahoma police officer interviews a college student suspected of being under the influence of the designer drug “K2” a synthetic cannabinoid activator drug. K2 was found to contain the research chemical JWH-073 which, in laboratory testing, was found to be much more potent than THC in marijuana. On the video the student tells the officer that he is addicted to smoking marijuana and is currently on probation for a conviction for dealing marijuana. He relates that K2 helps him relax when he feels the urge to go back to smoking marijuana as he trying to break his addiction to marijuana. He also adds that K2 will not trigger a urine drug screening test that he is required to submit to as part of his drug probation.

The research chemical JWH-073 found in K2 was declared a felony drug in 2011 under federal law. However, many designer drug analogues have popped up to replace JWH-073. In 2013, police began to see a product labeled “Scooby Snax” appearing in stores as a “legal” alternative to the now banned K2. Analysis of Scooby Snax found the new research chemical XLR-11 rather than JWH-073. The U.S. DEA has issued a position paper on XRL-11 (and the sister drug UR-144) and found it to be a “designer drug analog” of the drug JWH-018 which was first found in “Spice” in 2008. Recently dozens of new related drugs have appeared including ADB-FUBINACA, APICA and APINACA and AKB48 sold in packages of “Smacked,” “Crazy Clown,” and “Dead Man Walking.”

## Pharmacological Pupil Dilation- Before/After Photos



*Normal Pupil -  
No Drugs*

*Dilated Pupil-  
Drugs Present*

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**A** thirty year old pharmacy technician in Canada accidentally contaminated himself with the prescription medication hyoscine butylbromide, a muscle relaxant drug. Dr Daniel Calladine of Prince Charles Eye Unit of King Edward VII Hospital in Windsor, Ontario took the above before and after photographs of this “*pharmaceutical mydriasis*” or, in layman’s terms, drug-induced dilated pupil.\* These medical before and after photographs provide an excellent example of the effect drugs can produce in the human eye. Notice in the normal pupil image on the left how the black pupil is balanced in size with the colored iris. On the drug-dilated pupil the black pupil is easily recognized as being much larger than the colored iris.

In addition to marijuana, the stimulant class of drugs (such as meth-amphetamines and cocaine), the hallucinogens (such as LSD and mescaline) and the inhalants (such as spray paint and glue) can produce dilated pupils. High doses of some common over-the-counter cough cold antihistamines (Benadryl® the trade name for diphenhydramine) produces several side effects that include blurred vision and dilated pupils,\*\* and tricyclic antidepressants (such as Tofranil® can cause the pupils to dilate in “rare, isolated cases.”\*\*\*

\*[http://www.priory.com/med/pupil\\_files/image004.jpg](http://www.priory.com/med/pupil_files/image004.jpg)

\*\**Journal of the American Optometric Association*, Aug. 1993;64(8):586-8

\*\*\**Imipramine* ”Dr. Philip W. Long 1995, available at <http://www.mentalhealth.com/drug/p30-t03.html>

## Eye Lid Muscle Tone Examples



**Drooped eye lids (above) invade the pupils**



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In a school setting it is unsafe to physically manipulate a drug-impaired student in an attempt to determine muscle tone. However, muscle tone can be determined by trained observation of the student at a safe distance.

The eye lid muscles are one of the fastest acting muscles in the human body because of the involuntary blink-response to threats against the eye. When a person takes an intoxicating dose of drugs, these high tension muscles will often display obvious clues.

Depressant drugs cause a flaccid, rubbery muscle tone which will be displayed in the eye lid muscles as a “drooped eyelid” (as shown in the top photograph). A good rule of thumb to make the classification of drooped eyelids, is to check to see if the eye lid has invaded the black pupil of the eye. Normally the eye lids will not obstruct the pupil. Drugs that induce a flaccid muscle tone often will cause the eye lids to drop into the black pupil of the eye. For reference, compare the student’s eye lid position to a coworker’s eye lids.

Stimulant drugs may cause a “wild-eyed” look, in which the eyelids are far above the normal position (as shown in the lower photograph) with the eye lids near the very top of the colored iris. In addition to position, muscle tremor can be observed in the eye lids, as is the case with marijuana.

It’s important to remember that if *one* eye lid is drooped, this may be an indication of a serious medical condition such as a stroke. Recreational drugs of abuse are systemic, which means they work on the entire body, not just one muscle.

## Substance Abuse Intoxication Incident Report

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subject's identification number:

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Date

time

Initiating incident:

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*subject observation check list*

	pupil size	comments
dilated		
normal		
constricted		

	light change reaction	comments
fixed		
normal		
slow		

	eye movements	comments
jerking		
normal		
uncoordinated		

	eyelid muscle tone	comments
drooped		
normal		
tremor		

	fingers/hand muscle tone	comments
tremor		
normal		
fumbling		

	skin condition	comments
sweating		
normal		
cool/clammy		

	demeanor	comments
hyperactive		
normal		
lethargic		

	speech	comments
rapid		
normal		
slurred		

	odor detected	comments
alcohol		
marijuana		

*control observation name:*

	pupil size	comments
dilated		
normal		
constricted		

	light change reaction	comments
fixed		
normal		
slow		

	eye movements	comments
jerking		
normal		
uncoordinated		

	eyelid muscle tone	comments
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sweating		
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	demeanor	comments
hyperactive		
normal		
lethargic		

	speech	comments
rapid		
normal		
slurred		

	odor detected	comments
alcohol		
marijuana		



## Cannabinoid activators—

- ✦ Marijuana
- ✦ Honey Oil
- ✦ Ear Wax
- ✦ Shatter
- ✦ Dabs
- ✦ Synthetics:  
Spice/K2



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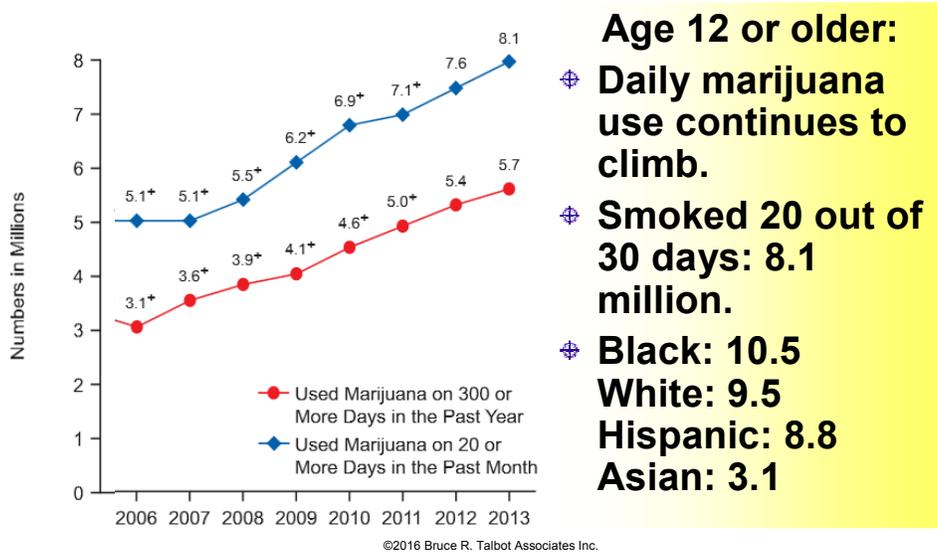
Two recent trends in drug abuse are the ever increasing potency and new forms of marijuana. According to data from the Potency Monitoring Project at the University of Mississippi, and the federal Pulse Check program, the tetrahydrocannabinol (THC) content of commercial-grade marijuana rose from an average of 3.71 percent in 1985 to an average of over 6.74 percent in 2013. The average THC content of U.S. produced sinsemilla increased from 3.2 percent in 1977 to 14.51 percent in 2013. This dramatic increase in potency of marijuana has produced unexpected consequences, including increased demand to addiction treatment services and a sharp increase in emergency room admissions from marijuana use.

New forms of marijuana are emerging, such as B.C. Bud and hydroponically grown marijuana producing even higher potencies. Another new trend in marijuana is Butane/Alcohol Extraction Hashish called “Shatter” “Ear Wax” “Dabs” or “Honey Oil.” These new extracted resin products are up to 80-times more potent than leaf marijuana and have caused hospitalizations and three deaths. This new form of hashish can be produced in any kitchen using canned butane gas, 200-proof pure-grain alcohol, and coffee filters. Shatter is the preferred form of chemical hashish because it produces the highest potency of THC compared to Ear Wax, or Honey Oil hashish. It takes a pound of cannabis to produce just one ounce of shatter valued at \$1,800 per ounce. Because of the butane gas and alcohol, there have been many explosions and fires caused by marijuana users attempting to make shatter without proper ventilation.\*

\*<http://www.dea.gov/divisions/sd/2014/sd091714.shtml>



## Adolescent Marijuana Addiction

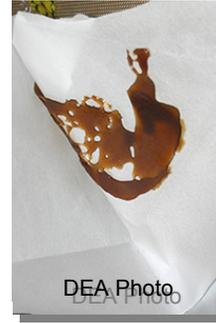
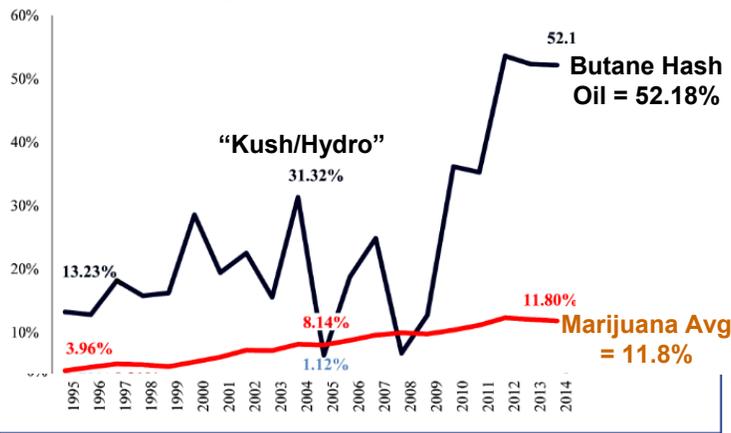


The September, 2014 “National Survey on Drug Use and Health” published by the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration’s Center for Behavioral Health Statistics and Quality, found that national marijuana use rates continue to climb. In the most dangerous category, known as “daily or nearly daily marijuana smoking,” the number of persons age 12 or older who smoked marijuana 20 days out of the past month increased from 5.1 million in 2006 to over 8 million in 2013. The number who said they had smoked 300 days in the past year increased from 3.1 million users to nearly six million users in 2013. Marijuana was the most commonly used illicit drug in 2013. There were 19.8 million past month users in 2013 (7.5 percent of those aged 12 or older), which was similar to the number and rate in 2012 (18.9 million or 7.3 percent). The 2013 rate was higher than the rates in 2002 to 2011 (ranging from 5.8 to 7.0 percent). Marijuana was used by 80.6 percent of current illicit drug users in 2013. About half (48.6 percent) of youths aged 12 to 17 reported in 2013 that it would be “fairly easy” or “very easy” for them to obtain marijuana if they wanted some.

Demographically, whites, blacks, and Hispanics used at similar rates. Only Asians had a significantly lower marijuana use rate. Geographically, the rate of current illicit drug use among persons aged 12 or older was 9.6 percent in large metropolitan areas, 9.8 percent in small metropolitan areas, and 7.8 percent in rural areas.\*

\*<http://www.samhsa.gov/data/NSDUH/2013SummNatFindDetTables/NationalFindings/NSDUHresults2013.pdf>

## 2015 Univ. Mississippi Report: Marijuana & BHO Potency



Source: University of Mississippi, Potency Monitoring Program, Quarterly Report 127

**THC Potency Increases From 3% Up To 52% Now!**

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The October 2015 National Drug Threat Assessment relates that standard street-grade marijuana potency sharply increased in strength from 2.8 percent in 1986 to 11.8 percent in 2014. This increase is the result of growers cultivating better strains of female cannabis with higher resin content. Resin has the highest concentration of THC intoxicant. The report also included high potency specialty THC extract known as butane extraction hashish. The average high potency hashish was 51.18 percent with some samples testing over 80 percent.

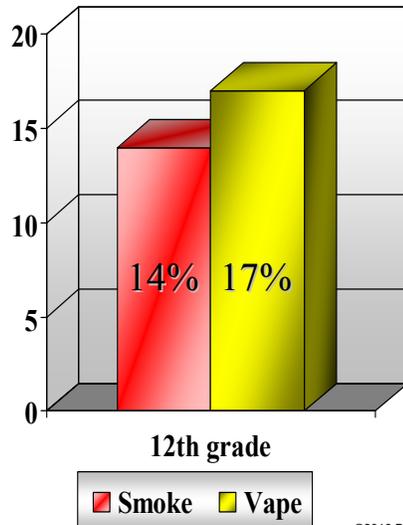
This high TCH content marijuana can cause panic attacks, heart palpitations, and paranoia which can result in hospitalizations.\* "There's an increase in psych admissions," says Dr. Stuart Gitlow, a psychiatrist and president of the American Society for Addictive Medicine, who estimates that upwards of 1 in 100 people using high-THC marijuana experience psychotic symptoms.

Over 1 million Americans sought treatment services for marijuana addiction. More teens are in treatment for marijuana abuse use than any other drug including alcohol. Marijuana was the second most frequently mentioned illicit drug reported to the Drug Abuse Warning Network (cocaine was the first) by emergency departments nationwide.\*\* DAWN also collects information on deaths involving drug abuse in 42 metropolitan areas across the United States. Cannabis ranked among the 10 most common drugs in 16 cities. Marijuana is very often reported in combination with other substances; in metropolitan areas that reported any marijuana in drug abuse deaths, an average of 79 percent of those deaths involved marijuana and at least one other substance.

\*2015 Nation Drug Threat Assessment, U.S. DEA, October, 2015, Page 65.

\*\*"National Estimates of Drug-Related Emergency Department Visits" Drug Abuse Warning Network (DAWN) Substance Abuse and Mental Health Services Administration, Pub. SMA 06-4143, Rockville, MD

## 2015 Study: Vape vs. Cigarettes



- ⊕ **More kids Vaping than smoking today.**
- ⊕ **Smoking declined to 1977 levels but. . .**
- ⊕ **Vaping nearly tripled.**
- ⊕ **Half of Vape-kids say they plan to smoke cigarettes.**
- ⊕ **62% of teens say safer.**

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**F**or the first time, more teenagers are using electronic-cigarettes than smoking tobacco cigarettes. The 2015 University of Michigan "Monitoring the Future" report found that teenage cigarette smoking in 2014 was at its lowest level since 1975. Among 12th-graders, 17 percent reported e-cigarette use and 14 percent reported use of a tobacco cigarette. Over 62 percent said there is a great risk from tobacco cigarettes but only 15 percent of 8th-graders said there is a great risk of harm with use of e-cigarettes. Also, 16 percent of 10th graders surveyed reported using an e-cigarette, while 7 percent reported using a tobacco cigarette.\*

"As one of the newest smoking-type products in recent years, e-cigarettes have made rapid inroads into the lives of American adolescents," Richard Miech, a senior investigator of the study, said in a statement. "Part of the reason for the popularity of e-cigarettes is the perception among teens that they do not harm health."

A recent study from the Center for Disease Control found e-cigarette use among school-age children has more than doubled recently, with half of children who report using e-cigarettes saying they intended to smoke conventional cigarettes within the next year.\*\*

One possible reason for the popularity of e-cigarettes is the liquid "juice" that is vaporized in e-cigarettes comes in hundreds of flavors. Some of these flavors, such as bubble gum and milk chocolate cream, are likely interesting to minors as opposed to adult smokers.

\*<http://tinyurl.com/nrfjdudz>

\*\*<http://tinyurl.com/luxxxen>

## Cannabis— Eye Clues



- ⊕ **Reddening of whites**
- ⊕ **Lack of convergence**
- ⊕ **Pupil dilation**
- ⊕ **Tremor in eye lids**

**Degree of Pupil Dilation is Dose Dependant**

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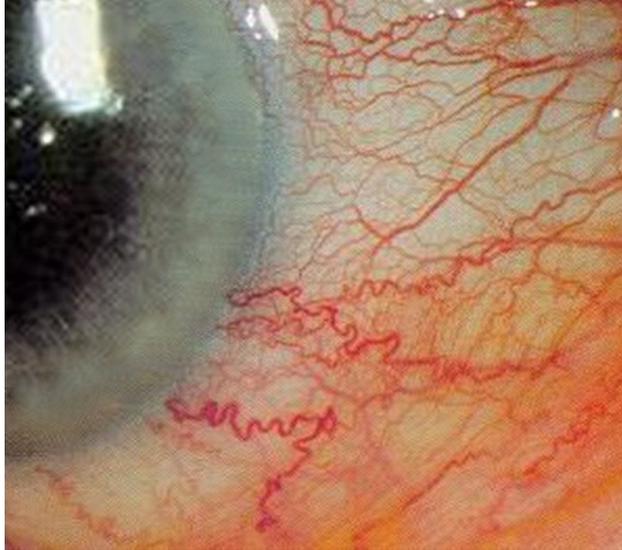
The eyes of a student under the influence of cannabis may appear half-mast, with droopy eyelids and a dazed, far away look about the eyes. The pupils will be dilated (compared to a non-intoxicated person under the same lighting conditions), but may not be nearly as dilated as a recreational cocaine or meth-amphetamine user. Marijuana also causes the tiny capillary blood vessels on the surface of the eye to dilate. The white surface of the eye has more capillaries per square inch than any other part of the human body, so when a person ingests cannabis, the whites of the eyes will assume a pink or red tint.

At higher doses, slight tremor of the fingers, stomach, legs, and eyelids will be apparent. It is important to remember that marijuana is not a depressant drug like alcohol, rather it is a poor quality hallucinogenic drug. Therefore, you will not see the gross physical symptoms of impairment common with alcohol or depressant drug abuse.

Several large-scale published studies found that heavy cannabis use begun in the teen years and continued into adulthood brings about declines in IQ scores. Published in the journal *Brain*, a New Zealand study found neural-connectivity impairment in some brain regions following prolonged cannabis use initiated in adolescence or young adulthood. The New Zealand study is the first prospective study to test young people *before* their first use of marijuana and again *after* long-term use (as much as 20+ years later).\*

\*<http://tinyurl.com/94ktml>

## Marijuana Effects on Eye–



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*Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 6th Edition* states: “Common physiologic effects of marijuana are mild tachycardia. . . injected conjunctiva and impaired motor skills.” The American Academy of Ophthalmology web site states: “adverse effects from the use of marijuana that have been reported include conjunctival hyperemia. . .”\*

What is “injected conjunctiva and conjunctival hyperemia? The conjunctiva is a thin, transparent tissue that covers the outer surface of the eye. A doctor often will refer to the “whites of the eye” as the *conjunctiva*. The conjunctiva is nourished by thousands of tiny blood vessels that are nearly invisible to the naked eye but can become visible do to irritation, disease, chemicals, or drug use. Certain drugs cause these tiny blood vessels in the conjunctiva to become dilated and engorged with blood producing what is commonly called “bloodshot eyes.” A doctor may refer to bloodshot eyes as conjunctiva hyperemia. *Hyperemia* is a medical term meaning increased blood flow.

It is a well documented observation by doctors and others that marijuana causes marked reddening of the whites of the eyes, (conjunctiva hyperemia or injected conjunctiva.) Originally, it was thought that this marked reddening or bloodshot in the eyes was caused by irritation from marijuana smoke, but today it is understood that one of the more than 400 chemicals in marijuana produces a chemical dilation of the tiny blood vessels in the eye, which turns the whites of the eyes pinkish-red in color. Alcohol also produces conjunctival hyperemia, the classic “bloodshot eyes.”

\*<http://www.eyecareamerica.org/eyecare/treatment/alternative-therapies/marijuana-glaucoma.cfm>

## Cannabis— Video Example



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**M**arijuana intoxication is not as physically impairing as alcohol—the real impairment is primarily in the brain. School staff who are familiar with alcohol impairment, but unfamiliar with marijuana impairment, often fail to recognize the symptoms marijuana produces. Although the person may not stagger or sway like an alcohol impaired subject, the impairment is real. Dozens of news paper accounts document Americans who have been killed by drivers impaired on marijuana. Any school bus driver under the influence of marijuana is a danger on the roadway.

Although the subject (pictured above) in this video does not sway like a drunk, the signs of impairment are clear. Note the tremor in the eye lids and leg of the video taped subject, all symptoms of marijuana impairment. Beside the whites of the eyes being noticeably red and the pupils being dilated, the employee may have a silver slime coating on the tongue caused by marijuana's effect on saliva. The loss of depth perception and slow internal body clock may also be observed. Remember, the impairment caused by cannabis use lasts for days after the intoxicating high wears off.

The proportion of American teens who believe marijuana use is harmful has been declining for the past several years, which has corresponded to a steady rise in their use of the drug, as shown by the annual Monitoring the Future survey of 8th, 10th, and 12th grade students.

## Medical Clues

- ✦ **High pulse rate**
- ✦ **Temperature normal**
- ✦ **Blood pressure decrease**
- ✦ **Respiration rate normal**
- ✦ **Disorientation as to time, higher doses place and self**
- ✦ **Panic attacks at high doses**



From "Girls Gone Weed."  
Note the pupils!

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**A**fter confirming the eye clues with matching physical symptoms, it is recommended the suspect be examined by a medical technician or other trained expert to help substantiate the staff member's observations. At the very least, the suspect's vital signs should be taken and recorded by the school nurse or a local paramedic/EMT.

It is very well documented that marijuana causes a marked increase in pulse and heart rate\* (tachycardia) from between 20 to 30 beats over the normal range while also lowering blood pressure.\*\* This is the most pronounced physiological effect cannabis displays in humans. This dramatic racing of the heart can be life threatening for persons with preexisting high blood pressure or heart problems. Marijuana intoxication can also alter the three orientations are: Where am I? What city or place is this? What day or time is this? Who am I? (Or feelings of being disconnected from one's body.) Having a third party expert examine a suspect makes a strong case in court, especially when the suspect refuses to submit to chemical testing. Eating cannabis (brownies) may produce LSD-like hallucinations because often the dose consumed is much larger than when the drug is smoked. As the high wears off (3 to 5 hours) the student will experience fatigue, muscle weakness, and drowsiness.

\*"Effects of acute marijuana smoking on pulse rate and mood states in women" *Journal of Psychopharmacology*, October, 1984

\*\*A double-blind, randomized, placebo controlled, cross-over study on the pharmacokinetics and effects of cannabis, *Ministry of Health, Netherlands*, May 2006

## Cannabis Medical Mimics—

**Head injury may produce drowsiness, lack of situational awareness, amnesia, loss of orientation, and UNEQUAL PUPILS:**



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The “stoned,” sleepy look of a person intoxicated on marijuana may be mimicked by a head injury such as a concussion. Head injuries generally produce a drowsiness that may be similar in appearance to marijuana impairment. Head injuries also tend to induce amnesia and a loss of situational awareness and orientation. Generally, marijuana intoxication does not produce a loss of orientation (measured by asking: “Where am I? Who am I? What time is it?”) as severe as a brain concussion.

Some forms of attention deficit disorder which leaves the victim in a non-communicative condition may mimic the sedated condition of a marijuana user.

In all cases, a school staff need to check the person’s eyes and evaluate the total symptoms displayed. A person suffering from a head injury may display one dilated pupil, whereas a marijuana impaired employee will always display the eye clues in both eyes. Combined with an odor of burnt marijuana, the drug-impaired person not be confused with a medically impaired victim.

In the above photo, note the difference in pupil sizes. Unequal pupils are never caused by drug abuse. One possible cause of unequal pupils could be Horner’s Syndrome, a form of palsy.

## Stimulant Drugs

- ✦ Cocaine/crack
- ✦ Meth/Ice/Crank
- ✦ “Bath Salt” analogs
- ✦ Ritalin/Adderall:  
“Diet Coke”
- ✦ Ecstasy: “Molly”



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The 2014 special report on student prescription drug abuse found 20 percent of college students had abused the prescription stimulant Adderall in the past year and these abusers were three-times more likely to use marijuana than non-abusers. The drugs in this category all hyper-stimulate the body and nervous system producing a “rush” and pleasurable sense of euphoria. It doesn’t matter which one of the dozens of different stimulant drugs a person may be abusing, they all produce the same eye clues and body symptoms. An person intoxicated on cocaine will look the same as a person high on amphetamines, so it is best to document “suspected stimulant drug abuse” rather than “cocaine abuse.” Most drug users arrested by police test positive for cocaine. It is among one of the most widely abused recreational drugs in America. Amphetamines such as Crank, Crystal, and White Cross, are often abused by school bus drivers.

There are many Designer Drug analogs of amphetamines such as “Ice” which is a smoke able form of the drug and the designer drug “Cat,” which can produce a rush and euphoria similar to cocaine. Students into the teen club dance scene may be abusing Molly (MDMA). A designer relative of methamphetamine, an ecstasy user will display the same symptoms as any other stimulant drug. Today, much of the “Molly” is in fact “Bath Salt” synthetic analogs.

*\*<http://www.drugfree.org/newsroom/adhd-survey-2014>*

## N-Bomb Death—Case Study



**Samuel Motsay, 16.**

- ✦ **May 11, 2014 Greenwood, Ind.**
- ✦ **N-Bomb O.D. death, 2 survived.**
- ✦ **Zachary Catron, 24 of Indy arrested for selling the drugs.**
- ✦ **John Romaine, 18, died of heart failure (excited delirium).**
- ✦ **22 deaths nationwide, many are serotonin shock syndrome (seizures).**

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The new designer synthetic drug 25-I-NBOMe, called “N-Bomb” on the streets has appeared in Indiana in several high profile drug deaths involving teenagers. Samuel Motsay, age 16, and two school friends from Greenwood, Indiana (just south of Indianapolis) purchased N-Bomb supplied by Zachary Catron, age 24 of Indianapolis who had already been sentenced to 20-years in prison for drug dealing. However, all but two years were suspended! The cause of death was found to be heart failure. The other two friends survived the event. Police officers initially told newspaper reporters they had never heard of the drug “N-Bomb” until Indiana State Police toxicology labs confirmed the drug was found at the scene by police.\*

Earlier, on March 28, 2014, John Romaine, age 18, of Hamilton County, Indiana (north of Indianapolis) took N-Bomb with three school friends and, like Motsay, died of cardiac arrest. Romaine’s brother told newspaper reporters, “My brother had a bit of a crazed, confused look” just before he died. In October, 2014, Emily Valentine, age 15, died of serotonin shock syndrome after taking one \$5 square of N-Bomb.\*\*

St. Vincent Carmel Hospital emergency room physician Dr. Marcus Hendry told reporters that N-Bomb is more powerful than the LSD it is often compared to. “They might experience agitation, hallucination, might get high fever, muscle injury, kidney failure, all the way to persistent seizures that may require the induction of a medical coma or even death as a result of persistent seizures.”

\*<http://fox59.com/2014/05/15/second-suspect-in-custody-following-teen-nbome-death/>

\*\*<http://raynham.wickedlocal.com/article/20141014/NEWS/141018247/12423/NEWS>



## What Is “Molly?”

### Most “Molly” is NOT MDMA:

- ⊕ Analysis found *bk*-MDMA aka: *Methylone*.
- ⊕ 6-APB “*Benzo-Furry*” found in pill-form Molly.
- ⊕ 50% increase in overdose incidents, one death.
- ⊕ Hyperthermia, seizures, high blood pressure and depression, and psychotic behavior.

Reports of a new drug called “Molly” causing overdose events have prompted concern in schools. Molly originally referred to pure “molecular” (hence the term Molly) MDMA and was always in crystal or white powder form – never pills. Today, pills called “Molly” are being sold and producing effects very different than pure MDMA. Analysis of one seizure of crystals sold as “Molly” in fact contained no MDMA but rather 2-methylamino-1-(3,4-methylenedioxyphenyl)propan-1-one, commonly known as methylone. There have been several deaths associated with the use of “Molly”/methylone caused by “sympathomimetic toxicity, including metabolic acidosis, rhabdomyolysis, and kidney failure”\*\*

The Illinois Poison Center and the Chicago Department of Public Health reported 246 suspected Molly hospitalizations with a 50% annual increase in emergency calls.\*\* In addition to methylone, the synthetic drug “6-APB” also known as “Benzo-Furry” 6-(2-aminopropyl)benzofuran, which is not listed as a controlled substance in Illinois or under federal law. Molly in pill form often contains one of the many synthetic “bath salts” stimulants.

The term “Molly” has recently been popularized by music celebrities including Madonna, rapper “2 Chainz”, Nicki Minaj, Kanye West, and even Miley Cyrus.\*\*\*

\*<http://www.thepoisonreview.com/2012/08/01/death-from-methylone-ingestion/>

\*\*<http://abclocal.go.com/wls/story?section=news/health&id=9193210>

\*\*\*<http://www.nytimes.com/2013/06/23/fashion/molly-pure-but-not-so-simple.html?pagewanted=all>

## Stimulants— Eye Indication:

- ✦ **Dilated Pupils (> 6.5 mm)**
- ✦ **Dilation to school nurse penlight stimulation**
- ✦ **Photograph the eye!**



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The human pupil can not normally dilate larger than one half the distance of the colored iris. In a lighted environment, a sober student's pupils will constrict in relation to the amount of light present. A suspected stimulant drug user's pupils will be grossly dilated despite the amount of light in the environment. A good way to make a judgment as to whether the student's pupils are inappropriately dilated is to use the 50 percent rule. If the black pupil of the eye is dilated greater than 50 percent of the distance of the colored iris, classify the pupil as inappropriately sized and look for matching physical clues of stimulant drug use.

If you suspect a student's pupils are inappropriately dilated, compare their pupil size to a coworker's pupils size under the same ambient lighting conditions. A sober student's pupils will be the same size as the coworker's pupils under the same lighting conditions. If the student's pupils are noticeably more dilated than the coworker's pupils classify the student's pupils as suspicious and indicative of drug impairment. Be sure to note the comparison in your written report.

When a stimulant drug user's pupils are stimulated with a penlight by a school nurse or EMT they will at first constrict from the increased light, but then dilate back out and stay dilated despite the penlight shining in the eye. The human body obviously does not normally react this way to a light stimulus.

## Stimulants— Physical Traits:

- ⊕ **Tense muscle tone**
- ⊕ **Tremors, hyper-activity**
- ⊕ **Flushed/warm skin**
- ⊕ **Grinding teeth**
- ⊕ **Red nose, sniffing**
- ⊕ **Sweating, dry mouth**
- ⊕ **Addict may not dilate pupil!**



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The physical body clues for stimulant abuse include a general hyperactive, “wired” appearance including an inability to sit still, rapid speech, and general nervousness.

The muscle tone is rigid and will produce tremors as the nervous system is hyper-stimulated by the drug. Look for these tremors in the fine muscles of the body, such as the fingers and hands, and the fast-reacting muscles such as the eyelids.

Skin tone will be flushed, warm to the touch, and sweating may be present. The increase in body temperature will cause dry-mouth and dehydration.

These drugs are acidic and if the drug is snorted up the nose, the nasal area will be red and sore looking and the person will have a runny nose with constant sniffing. However remember that this class of drugs can also be smoked and injected, the preferred method of stimulant drug addicts.

**Important Note:** Long-term stimulant drug addicts on a speed-run may not show dilated pupils. This is because the body develops a resistance to stimulant drug use when repeatedly administered over a long period of time. Most (30 percent) cocaine users abuse the drug twice a week; however, Dr. Forest S. Tennant’s study of street cocaine addicts using the drug every one to two hours found few physical symptoms displayed due to the diminishing effect repeated use produces.

## Stimulants— Medical Traits:

- ⊕ High blood pressure
- ⊕ Elevated pulse rate
- ⊕ Heart arrhythmia
- ⊕ High temperature
- ⊕ Rapid respiration
- ⊕ Malnutrition, paranoia
- ⊕ Aggression, depression



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**Cocaine** has a short duration of effects in the student's system, about three to four hours, and will be out of the blood completely in only six to eight hours. Urine testing should find traces of the drug up to 24-hours after last use.

Evidence of central nervous system hyperactivity including rapid speech rate, sweating, resting pulse rate of 110 or higher beats per minute, rapid respiration rate of 25 per minute or more, are all physical symptoms displayed by students under the influence of cocaine.

Abuse of methamphetamine can also produce violent, psychotic behavior. Chronic users may display paranoia from lack of sleep and suffer from vitamin deficiencies from loss of appetite. During a binge, the intravenous methamphetamine addict may inject 1,000 mg of the drug in order to experience the intense rush of pleasure. Physical effects are similar to cocaine including tremor restlessness, irritability, anxiety, heart arrhythmia, dry mouth, vomiting, abdominal cramps, and muscle pain. The latter symptoms indicating a toxic level of the drug. Adolescent meth use is rare in the Chicago area but common in rural Illinois.

**Important Note:** Very high doses of cocaine can bring about slurred speech, muscle relaxation and drooped eyelids similar to depressant drugs, as documented by Dr. Forest S. Tennant's research in California.

## “Big-Eye—Big-Hole= Cocaine”



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**A** simple mnemonic to remember how stimulant drugs affect the eyes is: “Big Eye—Big Hole: Cocaine.”

When discussing stimulant drugs, most people place cocaine at the top of the list because more people abuse cocaine than any other stimulant drug. People know that most cocaine users snort the drug up the nose, a “big hole.” Therefore, when a probation officer sees a grossly dilated pupil, it should stimulate a recall of snorting the drug up the nose, a “big hole.”

Of course before the school takes action based on this clue, matching physical symptoms must be observed.

In this photograph of an actual cocaine abuser, note the abnormally large pupil. Use the general rule of thumb that when the pupil is more than 50 percent of the distance of the iris, a drug impairment may exist.

During the day be sure to observe the pupils in a shaded area out of direct sunlight. Have the student close the eyes for 30 seconds and then note the size of the pupils. At night, avoid bright lights shining in the students eyes. Research shows that normal adults will have a pupil size between 2.9 mm and 6.5 mm, whereas stimulant drugs will dilate pupils well beyond 6.5 mm. Keep in mind that there may be a medical cause for dilated pupils. Always match suspected eye clues to matching physical symptoms and never label the drug use. Focus on behavior and performance issues.

## Narcotic Pain Killers—



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- ⊕ Heroin
- ⊕ Morphine
- ⊕ Opium
- ⊕ Codeine
- ⊕ Ultram
- ⊕ Vicodin ←
- ⊕ OxyContin
- ⊕ Fentanyl

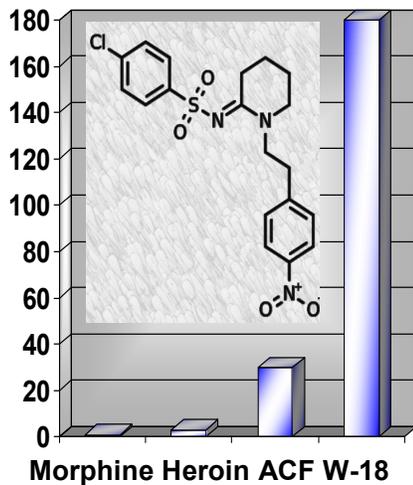
**All** the drugs in this category have the ability to produce a dream-like sense of supreme well being, but they also are powerfully addictive and quickly lead to tolerance. Tolerance means that a steadily larger dose is needed to produce the same euphoric effect. Regular abuse quickly leads to addiction. Extreme flu-like withdrawal symptoms appear whenever a dose is missed.

Although there are dozens of drugs that are classified as narcotics, they all produce the same eye clues and physical body symptoms. A person addicted to heroin will look the same as a person abusing legal prescription pain killers such as codeine. Although most people envision heroin when they think of abusers of this class of drugs, the term narcotics should be used instead.

Currently, there is a dramatic upswing in heroin abuse among both teenagers and adults nationwide. Once a school employee or student becomes addicted to narcotics, they will be forced to administer the drug roughly every four hours, which means they will need a place to “shoot-up.” Many narcotics users choose their car in the school parking lot as it offers some degree of privacy and cover as well as a storage spot for the injection kit.

Effective October 2015, Vicodin (hydrocodone) has been moved from Schedule 4 to Schedule 2 which will make obtaining large amounts of the drug very difficult. Ultram® may soon makeup for the shortage of Vicodin as it remains a Schedule 4 narcotic drug.

## W-18: New “Super Heroin”



- Yellow power, found in fake OC-80 pills in Canada.
- ⇌ Synthetic, “10,000 times potency of Morphine.”
- ⇌ 30 possible analogs.
- ⇌ Difficult to dilute, not as euphoric as heroin.
- ⇌ Sweden, Australia, Canada.
- ⇌ Difficult to detect, not yet illegal in US.

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**W-18**, the new designer synthetic narcotics, may become the next “Super Heroin.” Currently, street heroin (taken intravenously is three times more potent than morphine) is being dosed with Acetyl Fentanyl to boost the euphoria effect to attract more buyers. Estimated to be between five to fifteen times more potent than heroin, Acetyl Fentanyl has been responsible for a number of recent narcotic overdose deaths in the US, Canada, and Europe. In response, the US banned Acetyl Fentanyl in May of 2015 and now drug dealers have employed a new synthetic narcotic that is 100 times more potent than fentanyl! Known as W-18, (1-(4-Nitrophenylethyl) piperidylidene-2-(4chlorophenyl) sulfonamide), it is a unique narcotic not related to fentanyl or other known synthetics. It was discovered by researcher Edward E. Knaus and first appeared as a street drug in Sweden. It was quickly banned in Sweden in January, 2016, but has now spread to Canada. Calgary Police reported seizing the drug January 28, 2016 and other reports from Australia appear to show W-18 is spreading worldwide. Very few crime labs can currently test for W-18 so, much more of the drug may be on the streets than what has been publicly reported.\*

Chemically, this yellow powder is difficult to properly dilute into heroin as it is not water soluble. The W-18 seized by police in Canada has found in counterfeit 80 mg OxyContin pills. One user of W-18 claims to have snorted 600 micrograms (in 50 microgram increments) and related W-18 does not produce the euphoria that heroin and OxyCodone produces.\*\*

\*Feb. 22, 2016 Canadian News Report at: <http://tinyurl.com/hxnltj8>

\*\*The Blue Light forum site at: <http://tinyurl.com/zvllalr>

## Narcotics- Eye Indications

- ✦ **Pin-pointed pupils:  
<2.9mm**
- ✦ **Fixed, non-  
responsive to pen  
light stimulation**
- ✦ **Drooped eyelids**
- ✦ **Pulsing pupils =  
coming down**



Always check in room  
light, not outdoors.

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The narcotic-abusing student will have severely pin-pointed pupils while intoxicated on the drug. The normal range for human pupil size is between 3 mm and 6.5 mm, with small variations among individuals. A pupil size below 2.9 mm is suggestive of narcotic drug impairment.

As with cocaine, the school nurse should stimulate the pupil with a small penlight, holding the penlight 3 to 4 inches and at a 45° angle. If the pupils are constricted from narcotics, the pupils will be fixed in size and completely non-reactive to the penlight. Narcotics are the only class of drugs that produce this unusual pupil effect. Seeing a constricted pupil at night (e.g. football game or school dance) is obviously not normal and warrants a check for matching physical symptoms of narcotics. When the student is brought to the hospital for the blood and urine samples, you may notice the attending doctor does the same eye check.

The narcotics users' eyelids will be noticeably drooped, even "half-mast" because of the pronounced sedating effect narcotics have on the body. The pupils of the eyes will change from fixed and pin-pointed, to a pulsing condition known as "hippus" as the drug begins to wear off.

The above photo of an actual narcotics impaired subject is a good illustration of pin pointed pupils. Taking a photograph of the student's eyes can be excellent evidence. Keep in mind that bright sun light can also constrict a pupil so a second observation should be made in room lighting.

## Narcotics— Video Clip



In this video clip, an actor (pictured above) portrays a heroin user apparently sleeping in a bathroom stall. This euphoric dream-like mental state is called being **“on the nod”** and follows the rushing sensation after administration of the narcotics.

The camera zooms in to the actor’s eyes and a close-up of the eye shows severely constricted pupils. Anyone might think the narcotic user has just fallen asleep, but keep in mind a sleepy person will not have constricted pupils that are not responsive to changes in lighting. A constricted, fixed pupil is a sure sign of narcotics intoxication.

Although physical impairment is easy to observe and document when the person is actually intoxicated on narcotics, an addict who is on a maintenance level dose will not display any symptoms.

Also note that the physical impairment is not as gross as the typical alcohol impairment. However, the mental impairment from intoxicating levels of narcotic drugs can cause a safety risk.

Remember, an addict on a maintenance level dose of narcotics will not show any symptoms of impairment, even though the person may have enough of the drug in their blood stream to kill a new-user!

## Narcotics- Physical Traits

- ⊕ **“Show & Tell”**
- ⊕ **Drooped eyelids**
- ⊕ **Cool, clammy skin**
- ⊕ **Face and arm itching**
- ⊕ **Sedated “on the nod”**
- ⊕ **Dry, cotton mouth**
- ⊕ **Dreamy walk and talk**



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**Narcotics** abusers will display a generally sedated appearance. Their muscles will develop a weak, flaccid muscle tone as evidenced by drooped eyelids and a rubbery-legged walk.

The skin tone will also be affected, with a pale appearance, and the skin will be cool and possibly clammy to the touch. Immediately after injecting the heroin, the user will display sweat on the forehead. Facial and arm rubbing or itching is common due to the drug hyper-stimulating the nerve endings in the skin. This trait is known as “heroin show & tell”. Very common is a low, raspy change to the narcotic user’s voice. Reflexes will be depressed and coordination and balance will be impaired. This drug class also creates a dry mouth as may be evidenced by constant licking of the lips and dried white spittle in the corners of the mouth, called “cotton mouth.” Often the narcotic user will have sweets or soda to cope with the dry mouth and cravings for sweets caused by the drug.

The intoxicated narcotic user will display a dreamy appearance and carefree mental attitude while intoxicated. This will gradually turn into a restless irritable condition as the person begins to withdraw from the drug’s effects.

Narcotics causes constipation and therefore heroin users often will add baby laxative as a cutting agent to their heroin. Heroin also suppresses appetite so chronic users will develop a thin, gaunt, appearance known as “heroin chic”.

## Narcotics- Medical Clues

- ✦ **Decreased respiration**
- ✦ **Decreased pulse rate**
- ✦ **Lower body temperature**
- ✦ **Low blood pressure**
- ✦ **CAUTION: addict on maintenance dose will not display effects.**



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**M**any people wrongly classify heroin and other narcotics as a depressant category of drug. The mistake is understandable given what narcotics do to the vital signs of users; decreased respiration rate, lower pulse rate, lower blood pressure and lower body temperature, all of which are similar to depressant drugs. Flaccid muscle tone also seen both depressant drug abusers and narcotics users, so it's no wonder why many people mistakenly call narcotics a depressant drug.

The one obvious distinguishing characteristic between true depressants (alcohol, valium, barbiturates or GHB) and narcotics (codeine, Vicodin, heroin) is the effect on the eyes. Depressants produce nystagmus, narcotics do not. Narcotics produce a pin-pointed pupil that is not responsive to a pin light and depressants produce a slowed pupil response to light.

As it was explained during the discussion of tolerance a narcotics addict taking a maintenance level dose of narcotics will not display the eye clues or physical symptoms of narcotic impairment. A student who is on a maintenance dose will not display any symptoms of narcotics use but a urine or blood test will be positive for narcotics.

According to the DEA's National Forensic Laboratory Information System, approximately 63 percent of all police narcotics seizures were for either hydrocodone (Vicodin) or oxycodone (OxyContin).

## Pin-Pointed Pupils = Pin Hole *Think— Heroin*



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**A** mnemonic to remember the eye clue for narcotic drugs: “When you **see** a pin-pointed pupil, (constricted pupil), **think** pin hole. When you **think** pin hole **recall** heroin.”

Heroin can be taken orally, smoked, or snorted up the nose. However, when the drug heroin is mentioned most people think of injecting the drug directly into a blood vessel, creating a “pin hole.” Therefore, when you see a “pin pointed pupil” on a probationer think “pin hole” and you will recall heroin. Remember, narcotics will produce a “pin pointed pupil” only when the person is intoxicated. The average person taking a prescription dose of narcotics under doctor’s direction will not display these symptoms. Only a person who is abusing narcotics will display these clues of impairment. A narcotic addict will NOT display any symptoms when on a maintenance dose level of the drug.

Meperidine (Demerol®), propoxyphene (Darvon®) and pentazocine (Talwin®) may not pinpoint the pupils as hypoxia (shallow breathing) develops.\* It is always important to also check for physical symptoms.

*\*“Beyond the Basics” Joseph Mistovich, August 26, 2006, EMS Magazine*

## School Narcan Program

- ⊕ Narcan nasal spray displaces narcotics in brain receptors.
- ⊕ Reverses overdose if given within ten minutes.
- 1,244 officers trained with \$40K from County Health Dept.
- 22-saves in first 6-months.
- Safe for school staff to use – no risk for mistaken use.



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**Narcan®** is the trade name for naloxone, a chemical related to OxyCodone that does not provide a narcotic high but rather displaces any narcotic that is sedating the respiration regulating centers of the brain. Narcan use by non-medical personnel to reverse narcotic overdose began in 1996. A recent nationwide survey of 50 non-medical programs found they provided training and distribution of Narcan to more than 5,000 volunteers, which resulted in 10,171 narcotic overdose reversals. Police use of Narcan began in October of 2010 in Quincy, Massachusetts, a Boston suburb of 99,000 which had experienced 99 heroin overdose deaths in just 18 months. Since the start of the program, Quincy police have used Narcan nasal spray 221 times and reversed 211 narcotics overdoses. Today, many police agencies in New England, especially New York state, carry Narcan nasal spray.

Illinois Public Act 96-0361 enacted in 2010 amends 20 ILCS 301/5-23, makes it legal for non-medical persons to administer Narcan to reverse narcotic overdose. The law authorizes the Department of Alcoholism and Substance Abuse (DASA) to permit programs within the state to distribute Narcan provided they are approved by DASA. Starting with a pilot program in November of 2013, DuPage County Health Department has trained and supplied Narcan nasal spray kits to 1,244 police patrol officers and looks to expand the program to over 2,000 police officers including college police, park police and forest preserve district rangers. Police are trained to identify the signs of narcotic overdose and to spray half the dose up each nostril of the subject. Narcan has no adverse effects if given to a non-narcotic user. For information on setting up a program outside of DuPage County contact Richard Weisskopf at (312) 814-3840, or via e-mail at: [Richard.Weisskopf@Illinois.gov](mailto:Richard.Weisskopf@Illinois.gov)



# *Discussion . . .*

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