



LabINFO NEWSLETTER

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This newsletter is provided by the Lorain County Crime/Drug Lab discussing technical and general information dedicated to local agencies within Lorain County. The information has been collected from various sources and journals.

WHY FEMALES ARE MORE SENSITIVE TO COCAINE

[Source: www.drugabuse.gov] NIDA (National Institute on Drug Abuse)

This research by: Dr. Paul Mermelstein and Dr. Robert Meisel and colleagues at the University of Minnesota, Minneapolis.

Examined why females are more sensitive than males to the rewarding and motivational effects of stimulant drugs.

Research demonstrated that the female hormone estradiol is responsible for the increased sensitivity.

Women report more intense highs from cocaine than men do, and they become addicted to the drug more rapidly. Studies have shown that the female hormone estradiol contributes to these differences, but not how. New NIDA-supported research supplies a possible answer.

GLOBAL DRUG TRAFFICKING *[Source: www.unodc.org]*

At current levels, world heroin consumption (340 tons) and seizures represent an annual flow of 430-450 tons of heroin into the global heroin market. Of that total, opium from Myanmar (formerly Burma) and the Lao People's Democratic Republic yields some 50 tons, while the rest, some 380 tons of heroin and morphine, is produced exclusively from Afghan opium. While approximately 5 tons are consumed and seized in Afghanistan, the remaining bulk of 375 tons is trafficked worldwide via routes flowing into and through the countries neighboring Afghanistan.

For the North American market, cocaine is typically transported from Colombia to Mexico or Central America by sea and then onwards by land to the United States and Canada. Cocaine is trafficked to Europe mostly by sea, often in container shipments. Colombia remains the main source of the cocaine found in Europe, but direct shipments from Peru and the Plurinational State of Bolivia are far more common than in the United States market.



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COSTS OF SUBSTANCE ABUSE

Abuse of tobacco, alcohol, and illicit drugs is costly to our Nation, exacting more than \$740 billion annually in costs related to crime, lost work productivity and health care. [Source: US Department of Health and Services; www.drugabuse.gov]

	HEALTH CARE	OVERALL	YEAR ESTIMATE BASED ON
Tobacco	\$168 billion	\$300 billion	2010
Alcohol	\$27 billion	\$249 billion	2010
Illicit Drugs	\$11 billion	\$193 billion	2007
Prescription Opioids	\$26 billion	\$78.5 billion	2013

The resources above cover a variety of drug related issues, including information on drug usage, emergency room data, prevention and treatment programs, and other research findings.

URINE VALIDITY TESTS – Urine Drug Test

Urine validity/adulteration testing refers to testing conducted by the laboratory to determine/identify any attempt to tamper/adulterate/dilute/substitute a specimen. It is performed to validate the integrity of the urine sample through physiological means. The two most common validity tests performed in the laboratory are *Specific Gravity* and *Creatinine* to detect dilution.

EVALUATING URINE SAMPLE

The first step in evaluating a urine sample is documentation of the appearance and color. Normally, urine specimens range from pale yellow to clear depending on concentration. Unusual colors in urine samples can be due to medications, foods, diseases or foreign interfering substances and should be documented that accompanies the specimen for evaluation.

The urine specimen temperature should be recorded within four (4) minutes and Specific Gravity taken respectively. The temperature should be 32 degC (90 degF) to 38 degC (100 degF). Temperature outside this range can indicate that a substituted urine sample was used or tainted.



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FEDERAL SURVEY SHOWS TEEN MARIJUANA USE DROPPED IN 2016

[Source: cannabisregulator.com] September 11, 2017

The annual National Survey on Drug Use and Health released by the Substance Abuse and Mental Health Services Administration (SAMHSA) reports that teen marijuana use rates decreased nationally in 2016.

Past-month use rates among adults increased slightly, but alcohol use rates among all age groups decreased, indicating the possibility that adults are substituting *marijuana* for alcohol.

Past-month use rates for the 12 – 17 age group decreased by 0.5% from 2015 to 6.5% nationally in 2016. This is the lowest level of marijuana use in this age group since 2002. The data also shows a steady decrease since 2014, when the first states to make marijuana legal for adults began allowing regulated retail sales.

Nearly 70% of Americans take at least 1 prescription drug and 1 in 5 take at least 3.

[Source: *Health, United States 2014* by the US CDC]

TYPES OF ALCOHOL

ISOPROPYL ALCOHOL

Isopropyl alcohol is also called isopropanol or 2-propanol. More commonly, it is known as *rubbing alcohol* due to the practice of physicians rubbing the substance on the body for cooling and disinfecting. Produced by combining water and propylene, rubbing alcohol works well for sterilization. Its high evaporation rate makes it a first choice for cleaning electronics, although it is found in everyday cleaning products, as well. Isopropyl alcohol is also found in cosmetics, including lotions. The chemical formula for isopropyl alcohol is C₃H₈O (3 Carbons, 8 Hydrogen, and 1 Oxygen). *This alcohol is not safe to drink!!*

METHYL ALCOHOL

Methyl alcohol, also called *methanol* and *wood alcohol*, is used primarily as an industrial solvent (e.g., paint remover, photocopier developer). People also use methanol to make other chemicals. It also works to fuel internal combustion engines and keep fuel from freezing. The chemical formula for methyl alcohol is CH₃OH. *This alcohol is not safe to drink!!*



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ETHYL ALCOHOL

Ethyl alcohol, sometimes called *grain alcohol*, is the alcohol people consume in beverages. People usually take ethyl alcohol in a diluted concentration – the level of the concentration is known as the proof of the alcoholic beverage. Ethyl alcohol is known for its ability to alter mood and behavior. The liver usually is able to filter ethyl alcohol from the human body, but ethyl alcohol is still toxic when consumed faster than the liver can metabolize it! Like methyl alcohol, ethyl alcohol also has uses as an industrial solvent and as a fuel additive. The formula for ethyl alcohol is C₂H₅OH.

5 ounces of wine 24 proof	12 ounces of beer 10 proof	1 1/2 shot 80 proof
$24 \div 2 = 12$ (% alcohol)	$10 \div 2 = 5$ (% alcohol)	$80 \div 2 = 40$ (% alcohol)
$12 \div 100 = 0.12$	$5 \div 100 = 0.05$	$40 \div 100 = 0.4$
$0.12 \times 5 \text{ oz}$ =	$0.05 \times 12 \text{ oz}$ =	$0.4 \times 1.5 \text{ oz}$ =
0.6 ounces ethanol	0.6 ounces ethanol	0.6 ounces ethanol

CLUB DRUGS (GHB, Ketamine, and Rohypnol)

[Source: www.drugabuse.gov]

Club drugs are a pharmacologically group of psychoactive drugs that tend to be abused by teens and young adults at bars, nightclubs, concerts, and parties. Gamma hydroxybutyrate (GHB), Rohypnol, Ketamine, as well as MDMA (ecstasy) and methamphetamine are some of the drugs included in this group.

GHB (Xyrem) is a central nervous system depressant that was approved by the Food and Drug Administration (FDA) in 2002 for use in the treatment of narcolepsy, and the requirement for a patient registry monitored by the FDA.



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Rohypnol (Flunitrazepam) use began gaining popularity in the United States in the early 1990s. It is a benzodiazepine (chemically similar to sedative-hypnotic drugs such as Valium or Xanax), but it is not approved for medical use in this country, and its importation is banned!

Ketamine is a dissociative anesthetic, mostly used in veterinary practice. It is primarily sought by recreational users for its ability to induce a hallucinogenic "out of body" state referred to as "dissociative anaesthesia" (dosage dependent).

GHB and Rohypnol are available in odorless, colorless, and tasteless forms that are frequently combined with alcohol and other beverages. Both drugs have been used to commit sexual assaults (also known as "date rape," or "drug rape," or "drug-assisted" assault) due to their ability to sedate and incapacitate unsuspecting victims, preventing them from resisting sexual assault. GHB is Schedule I and Rohypnol is Schedule IV controlled substances in the US.

Ketamine is usually snorted or injected intramuscularly. Ketamine is a Schedule III controlled substance in the US.

MDMA (Ecstasy)

MDMA (3,4-Methylenedioxymethamphetamine) was first synthesized in the 1890s and later patented by Merck pharmaceuticals on December 24, 1912, but it wasn't until the mid 1970s that articles related to its psychoactivity began showing up in scholarly journals.

MDMA is a synthetic drug possessing both stimulant and mild hallucinogenic properties. It is considered a "party drug" and obtained at "rave" or "techno" parties. However, its abuse has expanded to include other settings outside of the rave scenes, such as college campus.

In the late '70s and early '80s MDMA was used as a psychotherapeutic tool and also started to become available on the street. Its growing popularity led to it being made illegal in the United States in 1985 (as Schedule I controlled substance) and its popularity has continued to increase since then.

METHAMPHETAMINE (Trade Name: Desoxyn)

[Source: www.deadiversion.gov]

Methamphetamine (Schedule II controlled substance) is a highly addictive drug with potent central nervous system stimulant properties. In the 1960s, methamphetamine pharmaceutical products were widely available and extensively diverted and abused. The widespread availability of methamphetamine today is largely fueled by illicit production in large and small clandestine laboratories throughout the United States and illegal production and importation from Mexico.



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Currently, methamphetamine is primarily produced by utilizing diverted pseudoephedrine combination products. The Combat Methamphetamine Epidemic Act of 2005 requires retailers of non-prescription products containing pseudoephedrine, ephedrine and phenylpropanolamine to place these products behind the counter or in a locked cabinet. Consumers must show identification and sign a logbook for each purchase.

PSILOCYBIN MUSHROOMS

There are more than 200 species of mushrooms that contain the psychedelic chemicals psilocybin or psilocin. They have a long history of use in Mexico and are currently one of the most popular and commonly available natural psychedelics. A psychedelic mushroom is Schedule I in the US.

ERGOT

Ergot is a fungus that infects cereal grains, replacing kernels of the fruit with small black masses of mycelium. It produces ergotamine, a potent vasoconstrictor and precursor to LSD. Ergot poisoning (St. Anthony's Fire) causes hallucinations, gangrenous loss of limbs, and death. Outbreaks plagued medieval Europe and were associated with witchcraft and the inquisition.

WATER INTOXICATION

Water intoxication is a state of altered neurological functioning produced by a hypo tonicity in the central nervous system. *It results from the excessive intake of water over a short time period.* The body is unable to remove water from the system as fast as it is taken in.

Consumption of excess fluid that normally could be eliminated with normal kidney function will cause a urine drug test to fail!

Compiled by: Emmanuel G. de Leon
Director, Lorain County Crime/Drug Lab

The information gathered for this newsletter is not necessarily the opinion of the County Crime/Drug Lab staff. The LabINFO Newsletter is solely available for informational purposes only.