





Alcohol

- Alcohol is the most commonly abused substance even among health professionals
- Blood alcohol can only be detected for several hours after the first drink
- Urine EtOH (alcohol) will only be detected 6-12 hours after the last drink.
- Urinary Metabolites of EtOH have revolutionized our ability to monitor alcohol use
- EtG (ethyl glucuronide) and EtS (ethyl sulfate) are 2 metabolites of alcohol that can be detected in the urine of someone for up to 3-4 days after alcohol ingestion. The quantitative values cannot be related to the amount of alcohol consumed. This is also complicated by the ubiquitousness of ethyl alcohol in common environmental products. These include most hand sanitizers and all liquid cold, cough and mouthwash preps that do not say ALCOHOL FREE. Alcohol may not be listed in the ingredients because it is defined as inert ingredient. SAMHSA says and EtG of >1000 is rarely due to incidental environmental exposure.
- PEth (phosphatidylethanol) is another metabolite of EtOH. It is bound to red blood cell membranes and is detectable in the blood of a donor at a level >20 if—and only if—the donor has consumed a minimum of 7 ounces of alcohol in the 2-4 weeks prior to the blood draw. 1 ounce of alcohol equals 1 shot and a half of spirits and/or 12 ounces of beer and/or 5 ounces of wine.

Cannabidiol (CBD)



- This is 1 of more than 100 products found in the Cannabis Sativa plant (cannabis, hemp)
- ALL available CBD containing products are known to contain a percentage of THC including Epidiolex (a medication approved for the use of 2 specific seizure disorders).
- Available as oil, extract, capsule, vaped product and infused into drinks and other products
- Most CBD containing products are marketed as dietary supplements and are NOT monitored by the FDA. They are also being marketed for Crohn's disease, Parkinson's disease, diabetes mellitus, schizophrenia, arthritis, anxiety, multiple sclerosis and in beauty products.
- There is NO scientific supported study documenting any effectiveness of these products.
- They can interact with prescribed medications—specifically anticoagulants—and can cause dizziness, fatigue, diarrhea and drowsiness. Their long term use has NOT been demonstrated to be safe.

Delta-8 THC



- Delta-8 THC (an isomer of Delta 9) doesn't naturally occur in large amounts in hemp plants. That means that delta-8 is largely made by converting cannabidiol (CBD) or delta-9 THC into delta-8 THC synthetically. This may occur in unsanitary, unregulated conditions with the use of potentially toxic chemicals.
- Produces a "high" similar to Delta 9 THC—referred to "weed light"
- Available in gummies, candies, cookies and brownies. VERY dangerous for children as well as pets.
- Side effects include hallucinations, psychosis, anxiety, dizziness, confusion and decreased level of consciousness.
- Delta 8 products may also contain Delta 9 THC but to detect certainly need to order specific Delta 8 THC test which is commercially available at a reasonable price.

Synthetic Cannabinoids



- Manmade-Fake Weed-K2/Spice. Bind to the same receptors as other cannabinoids. Sprayed onto plant material and smoked, vaped. Also available as liquid. Sold as herbal incense and herbal smoking blends. Associated with vape associated lung disease.
- Is this a real life Breaking Bad story-Dr. John W Huffman—is he a real "Walter White". More than 400 isomeric compounds. Formulas were published in scientific journals—were they "stolen" by drug manufacturers without his collaboration? Isomer names are all JWM 108 to >400
- Can produce tachycardia, hallucinations, seizures vomiting. Some found contaminated with brodifacoum—a rat poison—supposedly to prolong the effect of it. Also mixed with opioids including tramadol.
- Commercially available test at a reasonable price

Bath Salts



- Naturally occurring cathinones come from a plant grown in the Arabian Peninsular and East Africa-Khat—chewed by many in the indigenous community. Major agricultural product in Yemen. Class 1 drug. It is used in the synthesis of some drugs including Welbutrin
- Synthetic cathinones-mephedrone—are legal and sold as Bath Salts. They are NOT for bathing. They look like crystals similar to epsom salts. They are sold as powdered cleaners among other things and labeled NOT FOR HUMAN CONSUMPTION. Available online, head shops and of course gas stations. Can be ingested orally, snorted, smoked, or injected.
- A stimulant similar to amphetamines—increase dopamine production and inhibit uptake of epinephrine, norepinephrine and serotonin. Soluble and easily cross the blood/brain barrier.
- Side effects include severe agitation, erratic behavior, delusions, hallucinations, tachycardia, increase pain threshold and purported to produce "super" human strength.
- Highly addictive and there is reasonable priced commercially available test for detection

Phenibut



- Contraction of chemical name- β -phenyl- γ -aminobutyric acid. GABA analogue—similar to baclofen (Lioresal) for muscle spasms and pregabalin. Sold as Anfen, Fenabut and Noofen. Is a CNS depressant and developed in the 1960's in the USSR. Legal in Russia, Ukraine and Belarus. ILLEGAL as a drug in the US BUT sold online and other places as a supplement and cognitive enhancer.
- Phenibut is used in Russia, Ukraine and Belarus as a pharmaceutical drug to treat anxiety and to insomnia. It is also used for various other indications, including the treatment of asthenia, depression, alcoholism, alcohol withdrawal syndrome, post-traumatic stress disorder, stuttering, tics, vestibular disorders, Ménière's disease, dizziness, for the prevention of motion sickness, and for the prevention of anxiety before or after surgical procedures or painful diagnostic tests. Available orally and parenterally.
- In doses higher than the therapeutic doses produces euphoria, nausea, sedation, sedation and unconsciousness.
- There is NO reasonably priced commercially available test for this.

Kombucha



- Kombucha tea or simply **kombucha** – also Manchu mushroom, tea mushroom or **Chinese mushroom** – is a fermented acid-tasting drink obtained from sweetened tea fermented by the action of a gelatinous-looking colony composed of several microorganisms: bacteria, such as *Medusomyces gisevi* and *Bacterium xylinum*, *Gluconobacter oxidans* and yeasts, such as *Saccharomyces ludwigii*, *S. cerevisiae*, *Schizosaccharomyces pombe*, *Pichia fermentans* and *Zygosaccharomyces bailii*
- Alcohol is produced by the fermentation process. Even the prepared kombucha products contain alcohol but are labeled <0.5%. However, home brewed and store brewed kombucha can contain as much alcohol as is contained in beer.
- Kombucha has been around since the early 1950's when it appeared in Russian medical literature. There are NO proven scientific studies supporting the therapeutic benefit of kombucha for anything. It is sold as a probiotic and "aid to digestion", as well as claims that it is good for cancer, digestion and high blood pressure. In addition to the alcohol content that can cause abnormal toxicology test results, lactic acidosis, renal and liver disease have been reported and can be harmful to people with diabetes, pregnancy and compromised immune symptoms. Production is NOT quality controlled and therefore risks of contamination that can be harmful can exist.

Kratom



- Kratom is a tropical tree native to Southeast Asia. Consumption of its leaves produces both stimulant effects (in low doses) and sedative effects (in high doses), and can lead to psychotic symptoms, and psychological and physiological dependence that requires significant opioid detox. Common or Street Names: Thang, Krypton, Kakuam, Thom, Ketum. The active ingredients in the plants are 2 naturally occurring alkaloids-Mitragynine and 7-hydroxymitragynine.
- Available in tablet, capsule and extract. Can be in products combined with CBD. Even a type of 5 hour Energy drink PLUS kratom
- Not approved by the FDA for any medical purposes. Again sold as a "supplement". However, people report using kratom to alleviate pain, to address symptoms of mental health conditions like anxiety and depression, to help stop or reduce opioid or other substance use and to manage withdrawal symptoms and cravings related to opioids and other drugs—because it acts like an opioid.
- Kratom's effects on the body include nausea, itching, sweating, dry mouth, constipation, increased urination, tachycardia, vomiting, drowsiness, and loss of appetite. Users of kratom have also experienced anorexia, weight loss, insomnia, hepatotoxicity, seizure, and hallucinations.
- Both additive and synergistic effects are observed if Kratom is used with benzodiazepines, barbiturates, alcohol, opioids, antidepressants, anxiolytics, and other CNS-active drug.
- There is a reasonably priced commercially available test for kratom

Tianeptine



- Tianeptine is a tricyclic antidepressant with opioid properties licensed as an antidepressant sold under the names Stablon and Coaxil in other countries—particularly Europe, Asia and Latin America. Tianeptine is NOT medically approved for any use in the US but is available as a supplement and cognitive enhancer known as Tianaa (Red, White and Green) and ZaZa Red and Silver as well as other product names. Also known as "gas station heroin". It is said to be valuable for anxiety, depression, in people with Parkinson's disease,¹ and with post-traumatic stress disorder... Overdose can be treated with Narcan. It has been banned in some states-Alabama, Michigan, Minnesota, Ohio and Tennessee but of course is available anywhere online.
- It has been found in counterfeit pills mimicking hydrocodone and oxycodone pharmaceutical products, and individual stamp bags commonly used to distribute heroin. Possible side effects include nausea, constipation, abdominal pain, headache, light-headedness, and changes in dreaming. In high doses, or when combined with other synergistic drugs such as alcohol or benzodiazepines, tianeptine can cause drowsiness, confusion, difficulty breathing, coma, and death and is strongly associated with addiction and withdrawal.
- Alcohol as well as long term aspirin use can decrease how quickly the body breaks down tianeptine. Taking tianeptine along with alcohol might increase the levels of tianeptine in the body and increase the risk for side effects
- There is NO reasonably priced toxicology test for tianeptine commercially available

Xylazine



- Known as Tranq and Sleep Cut—can be an adulterant—most commonly in cocaine, fentanyl and heroin -- or used independently
- Approved ONLY for use by veterinarians—not controlled federally. It is a sedative with analgesic and muscle relaxant properties. It is an Alpha2 adrenergic agonist—similar in structure to tricyclic antidepressants and phenothiazine. It inhibits the release of dopamine and serotonin and acts as a CNS depressant.
- Can be smoked, snorted, injected, inhaled and swallowed
- May potentiate the effects of heroin. Overdose looks like any other opioid overdose BUT it is not responsive to naloxone. Commonly see miosis, apnea, hypotension and bradycardia
- No commercially available reasonably priced test for this



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