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Heavy Alcohol Use Reported in Cohorts of 8th and 10th Graders

A recent study of 8th- and 10th-grade drinking and drug use habits revealed troubling statistics. In *The Journal of Studies on Alcohol and Drugs*, researchers discovered that the greater the amounts of alcohol consumed and the early age at which the use starts directly relates to alcohol dependence and other problems later in life. This newsletter has reported on several aspects of this research in prior editions. This volume illuminates the factors that increase risk of use. Researchers probed and identified indicators associated with risk and protective factors for 505,668 8th- and 10th-grade students. 65.3% of the respondents were white, 12.3% black, and 11.1% Hispanic. 51.5% of the respondents were girls. Drinking was defined as having five or more drinks over the course of an episode of drinking.[1]



Compared to white students, black students had significant lower risk for heavy drinking with an odds ratio of 0.71. Hispanic students had a noticeably higher risk for heavy drinking at a ratio of 1:16. Factors considered as abetting drinking and increasing risk were cutting of class, a belief that friends get drunk and use drugs, more nights out during the week without parents present, perceived pressure to drink or use drugs, freer access to alcohol, risk-taking and aggressive behavior, and tobacco or marijuana use. Preventative factors included better school grades, personal disapproval of heavy drinking, perceived risks associated with heavy drinking, and high levels of self-esteem.

In a prior Monitoring the Future Survey that covered 2003-2007, 4% of 8th graders and 8% of 10th graders reported one episode of heavy drinking during the past two weeks; further, 6% of 8th graders, 14% of 10th-grade boys, and 12% of 10th-grade girls reported two or more episodes of drinking.

Although the statistics presented by these studies are troubling, there are some useful pieces of advice for parents, teachers, police, and community corrections personnel. It's rather clear that efforts that appropriately educate and warn young people about the dangers associated with alcohol can pay off in the development of cautious attitudes about alcohol. Parents should ask themselves why it is that kids should be out at night, unsupervised during the week. An emphasis on good school attendance and good grades is important. Use of tobacco, especially the smoking of cigarettes should be aggressively fought as well. The transition from tobacco smoking to marijuana abuse is an easy stroll. The relationship between marijuana and alcohol abuse has been established in other studies as well and should be a topic that parents never tire from addressing with their children.

[1] Patrick ME and Schulenberg JE. Alcohol Use and Heavy Episodic Drinking Prevalence and Predictors Among National Samples of American Eighth- and Tenth-Grade Students. *J Stud Alcohol Drugs* 2010 Jan; 71:41

Is that Seven-Card "Stud" or Seven-Card "Suds"?

Readers of this journal have been treated to some unusual stories of substance abuse and addiction. And these stories just keep piling up. A recently concluded study by Nova Southeastern University reveals that professional and amateur poker players are heavy users of performance enhancing drugs. Nearly 80% of the poker study participants admitted as such. Players were initially surveyed at the World Series of Poker tournament in Las Vegas. Other professional and amateur players were contacted online in locations all over the world. The majority of the surveys participants were men in their 20s.



Nearly 28% of the poker players indicated that they took at least one prescription drug in order to boost their play. The prescription drugs cited as most popular were the following: amphetamines, benzodiazepines (i.e., valium), hydrocodone (i.e., Vicodin) and methylphenidate (i.e., Ritalin). Of the 80% who admitted drug use, the breakdown by drug class or type was the following: caffeine (71%), energy drinks (51%), dietary supplements (46%), marijuana (34%), and alcohol (30%). Poker players also cited the use of caffeine and guarana-infused energy drinks.

Getting a mental edge on an opponent in a poker game can gain a player serious strategic leverage. Stamina in poker flows from one's ability to concentrate and think in abstract mathematical terms. Because poker matches can go on for hours, or even days, the role for stimulant-based performance enhancing drugs is obvious. Use of opiates may serve as a sedative and reduce the display of anxiety clues or cues to competitors. The use of alcohol and marijuana may be counterproductive however. Studies of both alcohol and marijuana indicate that even in small concentrations they can dull cognitive throughput and can increase the tendency towards risk and capricious decisions. So although a significant number of participants admitted to the use of drugs of abuse when playing poker, it may be that their drug use is an issue separate and apart from any real strategy to gain an advantage over an opponent.

The Work of Dr. Moritz Romberg

Moritz Heinrich Romberg (1795-1873) was a neurologist who practiced medicine in Berlin, Germany. Dr. Romberg became famous with his diagnosis of *tabes dorsalis*, a Latin term meaning "decay of the back." The disease that he diagnosed, named neuro-syphilis, is a progressive disorder that seriously affects the spinal cord in the later stages of syphilis. In this condition, a patient suffers a slow degeneration of nerve cells and fibers in the spinal cord. Diagnosed with such a condition, a patient will suffer from *gait ataxia*, an unbalanced and staggered gait. The condition also causes extreme neuropathic pain in the extremities and can lead to urinary incontinence. Dr. Romberg explained his observations of the disease as follows: *"The gait begins to be insecure...He puts down his feet with greater force...The individual keeps his eyes on his feet to prevent his movements from becoming still more unsteady. If he is ordered to close his eyes while he is in the erect posture, he at once commences to totter and swing from side to side; the insecurity of his gait also exhibits itself more in the dark."*^[1]



Dr. Romberg's self-described test is a challenge to *proprioception* receptors, vestibular system (inner ear) and vision. Proprioception refers to the body's perception of stimuli relating to posture, position, equilibrium and the overall sense of internal condition. In the human inner ear there are two fluid filled sacs. Within these sacs are tiny *otoliths*, small structures that establish balance and orientation of position (equilibrium).

Equilibrium is established from separate peripheral sources: vision, the vestibular system, and from proprioception. Degradation or disturbance to any of these peripheral sources can sometimes be compensated for by one of the other two.

Moving ahead, Romberg's "stand" or "modified position of attention" has been widely accepted as a means of assessing human central nervous system impairment in people who are under the influence of drugs or narcotics. Romberg's original test has been modified slightly by medical and public safety professionals. The test requires a subject under evaluation to close his or her eyes, tilt the head back, and estimate a 30 second span of time. In this "position of attention," visual cues have been removed and now the Romberg evaluator has the other two sources to assess: the senses of proprioception and the vestibular system. Having a subject close his or her eyes can exacerbate imbalance, which might have been compensated for if visual cues had been available.

When conducting a Drug Abuse Recognition (DAR) exam, a "Romberg test" can establish the presence of certain drugs. For example, when a person has ingested a *sympathomimetic* (activates the "fight or flight" system) drug, an evaluator might see eyelid and other tremors of the body's extremities. These stimulant drugs may also speed up the internal body clock where an affected person might estimate the passage of 30 seconds in 20 seconds or less. While observing and scanning the body, nerves and muscle groups may appear taut and can twitch or shake.

If someone ingests a drug known to be *parasympathomimetic* (activates the "feed and breed" system), the body's overall level and amount of activity will slow. An affected person will exhibit a more tranquil response to instructions and situations. Also, the person's perception of time is depressed or slowed. Muscles and nerves are more flaccid.

The Romberg balance test is a valid tool in Drug Abuse Recognition (DAR) screening and evaluations; it is one of several effective procedures that can be used to assess suspected drunk drivers. Although Romberg test results cannot be correlated directly to precise concentrations of alcohol in the body, trained observers can glean a great deal of information towards identifying the identity of a drug involved in a suspected case of DWI. Romberg information can also help evaluators identify medical and psychiatric problems that may be affecting a person who is suspected of using dangerous drugs and narcotics. The Romberg test's utility is one reason why the exam is a component of DRE and DAR exam processes.

Today, the Romberg test or Romberg Sign can be used for many purposes in determining impairment or influence of drug ingestion to neuropathic disease. Either way, it is a tool of value and significance to all who are trained in its proper utilization and interpretation of results.

Written by Mr. Rich Ulrich, Master DAR instructor, Drug Recognition Expert (DRE), DRE instructor, and MEDTOX senior criminal justice consultant.

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[1] Pearce JMS, Romberg's Sign, J Neurology Neurosurgery & Psychiatry 1993; 56: 51.

In the spring of 2008, the DAR Hotline reported on the emergence of a drug called "Kratom." Billed as a hallucinogen with properties akin to ecstasy (MDMA), the drug's properties are most like that of an opiate. On the west coast, Kratom has gained the most traction. Callers to the Hotline from California are particularly concerned about how Kratom use can be detected and whether or not the drug constitutes a real threat as a drug of abuse. From what the Hotline and our DAR staff can determine, Kratom use and abuse has not changed much since our last report in 2008. Despite the frequent calls the Hotline receives about this drug, it does not seem to be much of a public safety threat on the streets. The drug seems to be more a curiosity for those users who are attracted to the hallucinogens and opiates.



Someone who is taking Kratom in one of its forms is likely to exhibit symptoms of someone under the influence of a low dose opiate. Because it is a mu receptor agonist, evaluators should expect to find constricted pupils (miosis), a sluggish to no reaction of the pupil to light, slowed Romberg clock and a slow deliberate gait and pattern of speech. The span of psychogenic effects for Kratom is 2-3 hours. Kratom use can become chronic for those users who are predisposed to addiction. Kratom can be addicting and it can cause opiate-like withdrawals for those users who suddenly stop taking the drug following chronic abuse.

Kratom is extracted from the leaf of a tree that grows widely and wildly in Southeast Asia. Concentrated in the Kratom leaf is an alkaloid known as mitragynine. This alkaloid is one of probably many that are concentrated in the plant. The active chemical of mitragynine has some similarities to the tryptamine family of abused drugs in the United States. That class of drugs has experienced consistent popularity as alternatives to mainstream stimulating hallucinogens. Kratom seems to produce some of the same paradoxical effects as the tryptamines, but it does so less powerfully and for shorter lengths of time. The unusual effects of this drug flow from its action as an agonist of the mu opiate receptor. The drug produces sedating effects as a result of this action, but it does so while increasing a user's sense of wakefulness, especially at lower doses. In Southeast Asia, it's common to find laborers walking around with a wad of Kratom wedged in their mouths. These people chew the leaf much like coca leaves are chewed and crushed by natives in Bolivia, Peru and Ecuador. The drug is purported to have properties that can cause the release of the neurotransmitter serotonin in the central nervous system, too. This effect acts as a biochemical cushion against a crash from its mu opiate receptor activity. Some users have related their tendency to use Kratom to lessen the harsh symptoms caused by withdrawal from other opiate preparations.

Kratom has not experienced much diversion and trafficking into adolescent using groups. Although Kratom does not appear to grow in the United States, Kratom products are abounding on the Internet. Most sites appear to be selling extracts of the leaf. There are some sites that cater to the actual Kratom leaf. The drug's rather limited availability and stiff price tag (ranging from \$75-225 per 2 oz. bottle) seem to have acted as a barrier to cross over into teenage drug using circles. Some off-key health food stores carry Kratom leaf products on their shelves, but expect most products to come from Internet sites that are headquartered overseas in Thailand. In Thailand, the drug is controlled substance and is popularly abused.

Although most forensic laboratories can screen for the principal alkaloids in Kratom, it can be costly. If you live or work in a community where Kratom has a foothold, contact your laboratory sales representative and discuss the options for testing. DAR users can contact the DAR Hotline for situations where Kratom abuse is suspected.

Name that Drug: A Surprising Stimulant

This month's mystery drug is a relative newcomer to the substance abuse scene in the United States. This drug is a central nervous system stimulant with a potency that is approximately 50% of cocaine or amphetamine. Like cocaine, this month's drug grows as a scraggly shrub into a flowering topped tree that reaches to 12 to 15 feet in height. The drug has a rich history that dates back to the likes of Cleopatra and ancient Egypt. Powerful feelings of God-like omnipotence were experienced by the ancients who consumed this drug, emotions that fit perfectly with duties of the ruling elite. The plant material was alleged to have been mulched and made into a tea that was served at mid-day. The active ingredient in the plant material served to blunt appetite and increase exertion and work output.

Hailing from the Arabian Peninsula, this drug is widely and commonly abused in the countries of those regions. The plant does not grow well in the United States or in other terrain in the Western hemisphere. The drug is also indigenous to parts of East Africa. Places such as Somalia and Yemen are source countries for this drug and its growing market. Countries like Kenya struggle against a significant smuggling industry devoted to the export of the plant material. The plant experiences a significant decline in potency when the leaves and stems begin to dry out as the prime intoxicant in the shrub degrades and becomes unstable. Fresh plant material sells best on the open market. While still moist, leaves are plucked from the shrub and fashioned into a wad similar to that of chewing tobacco. The cud is then exercised in the mouth between the teeth and gums. The active ingredients in the plant material are then absorbed through the mucous membranes of the mouth. Some of the juice from the plant slips through and goes down the throat and into the stomach where it is also rapidly absorbed into the bloodstream. Dried plant leaves, although less potent than the moist plant material, can be crushed and tinctured to form a hot or cold beverage.

In the United States, this month's mystery drug has slowly, but consistently, spread into major urban areas. The drug is typically found in immigrant communities from the Middle East and Africa. To date, the drug has not been particularly attractive to native drug abusers. Nevertheless, law enforcement and drug treatment professionals have been forced to contend with this drug. The psychoactive chemical concentrated in the leaves of this plant is capable of causing addiction and a difficult drug dependency. Someone who is physically dependent on this month's drug will experience cocaine-like withdrawals and cravings. Relapse and other addict challenges are all part of the experience with this drug.

The most psychoactive component of the plant's leaves is the chemical *cathinone*. This monoamine alkaloid is present in fresh leaves of the plant, as the leaves dry and *cathinone* degrades, greater percentages of *cathine* can be detected. Cathine is an alcohol compound that is less powerful than cathinone but still a notable central nervous system stimulant in its own right. Cathinone, like drugs in the amphetamine class, can prompt the release and slow the reuptake of dopamine and norepinephrine in the sympathetic nervous system. In fact, cathinone bears a strong structural resemblance to amphetamines. Someone chewing the leaves of this plant will experience stimulant effects for 3-6 hours. Fresher, moister leaves may trigger an extended high that lasts for up to 12 hours. Cathinone is rapidly reduced and metabolized into norepinephrine and norpseudoephedrine in the urine.

This month's drug is often misidentified as a synthetic knock-off of its active ingredient, a drug known as *methcathinone*. This drug is typically produced in clandestine labs through a process of oxidation of ephedrine. *Methcathinone* is typically used and sold in a powder form, where it is then snorted or injected for effect. It is a powerful Schedule I drug that has no recognized medicinal value in the United States.

This month's drug was recently the subject of an international study conducted by experts at the

University of Minnesota and the International Brain Research Institute.[1] This seminar was the first of its kind in looking at the neurobehavioral effects of long-term use of this month's drug. Minnesota is a state where the month's drug has become a prominent problem in communities of African immigrants. On the streets of the Twin Cities, the drug is phonetically called "cat" or "cot." Police there often seize wrapped batches of the still moist plant material with leaves attached to foot long stems or stalks.

This month's drug is *Catha Edulis* or "Khat." On the street, the drug is sometimes referred to as *African Salad* or *Somali Tea*.

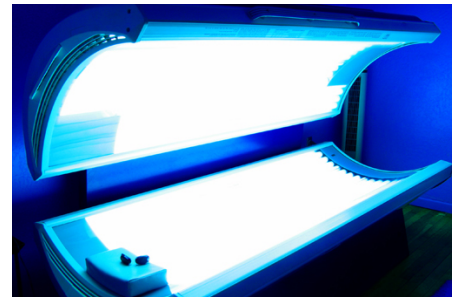


[1] University of Minnesota led and National Institutes of Health grant funded Khat Research (KRP) led by Dr. Mustafa al' Absi held December 11, 2009 at Sharm El-Sheikh, Egypt.

Tanning Bed Addicts and Their Correlation to Alcoholics and Drug Addicts

Recent evidence has emerged that some people who frequent indoor tanning beds may exhibit symptoms of addictive disease, much like that found with alcoholism or drug addiction. What biochemical forces are there behind an addiction to tanning? Some experts have opined that tanning unleashes endogenous opioids (endorphins) and as a result, the behavior receives a burst of chemical reinforcement.

Others have theorized that tanning is a coping mechanism. Like other addictive behaviors, experts believe that serial tanning can help stimulate positive mood and aid in the coping with a variety of environmental demands. The bottom line however is whether or not the people tanning have lost control of their behavior and continue to pursue tanning when they know that it will hurt them or their families and friends. To that end, it would be probative to determine whether or not at-risk tanners, those at higher risk for skin cancer, continue to access tanning beds when there is a near certainty that the behavior will trigger a life-threatening condition, such as melanoma. If that were the case, then a stronger argument could be made that for some people, indoor tanning can rise to the level of addictive disease.



Earlier studies have created suspicion that repetitive tanning of all types can lead to addiction. The current research focused specifically on the practice of indoor tanning. Some tanners are known to visit local tanning salons 3-4 times a week. Some even accumulate more than 100 visits a year. Mental health experts have now come to believe that serial tanning may be a unique form of substance use disorder. Researchers have now set out to assess whether or not this behavior meets DSM-IV criteria as a legitimate substance disorder.[1] Further, research has endeavored to determine whether people who engage in this behavior abuse drugs and alcohol at more than ordinary levels.

A recent, instant study involved 421 participants from SUNY-Albany. Approximately 40% of the 229 eligible participants met either a specially modified or traditional DSM-IV-TR criteria for addiction to indoor (lamp sourced) tanning.[2] The authors of the study modified two measurements of addiction in order to fit the context of the study. Those participants who met the criteria for addiction to tanning also reported greater symptoms of anxiety and also reported greater alcohol and marijuana use. There did not appear to be a correlation between tanning addiction and abuse of nicotine or stimulants (cocaine, methamphetamine, etc.) Approximately 42% of those meeting traditional DSM-IV addiction criteria

reported using two or more substances of abuse during the previous month.

[1] Mosher CE & Danoff-Burg S, Addiction to Indoor Tanning: Relation to Depression, Anxiety and Substance Use. *Archive of Dermatology* 2010 April; 146;412.

[2] Ibid.



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