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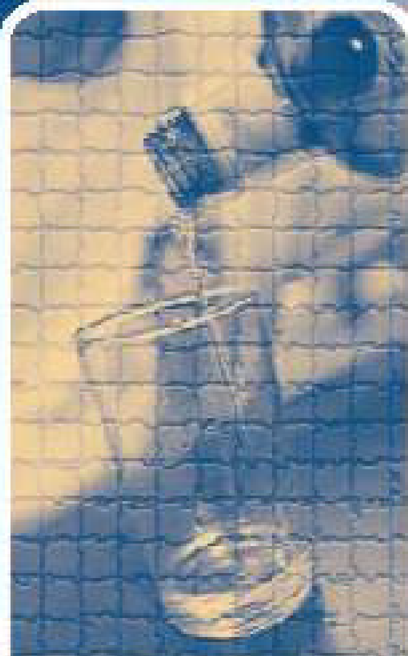
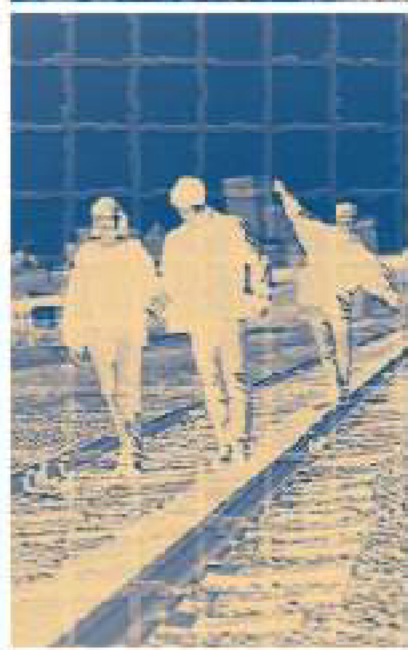


DRUG COURTS RESOURCE SERIES

# The Interrelationship Between the Use of Alcohol and Other Drugs:

## Summary Overview for Drug Court Practitioners



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AMERICAN UNIVERSITY

Office of Justice Programs Drug Court Clearinghouse and Technical Assistance Project
American University

*Issues Paper Series*

# The Interrelationship Between the Use of Alcohol and Other Drugs:

## Overview for Drug Court Practitioners

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## Foreword

Almost all drug court programs prohibit or strongly discourage the use of alcohol by drug court participants. The justification, however, for imposing such restrictions has been questioned—particularly since, unlike controlled substances, the use and possession of alcohol are legal except under certain specified conditions (e.g., while driving, by minors).

The purpose of this issues paper is to address the underlying physiological, sociological and psychological foundation for prohibiting persons addicted to controlled substances from using alcohol. This paper addresses the interaction of alcohol with other drugs as well as the effect of alcohol on the system of individuals who have been using controlled substances, even if they are currently abstinent. The paper is designed to alert the lay reader to the most critical issues relevant to addressing this topic and is intended to provide an overview for drug court officials—primarily lay persons—for working with treatment experts in addressing this complex process. The paper, however, is by no means a definitive treatment of the issues and should be used only as a guide for working with experts in the field.

The author, John N. Marr, received an M.S. in counseling psychology from the University of Nevada. He heads Choices Unlimited of Las Vegas, Nevada, a private organization that provides the treatment services for most of Nevada's adult, juvenile and family drug courts. Mr. Marr lectures frequently on pharmacological issues relevant to drug treatment programs.

The pharmacological effect and interaction of various stimulants, depressants, hallucinogens and other substances on the human system is a complex science requiring years of specialized study and training. We hope this paper will be useful to drug court officials in providing an introductory overview to issues relevant to the topic and, in particular, to the effect of alcohol on persons who have been addicted to other substances, to assist them in working with experts to further address these issues in the design and operations of local drug court programs.

Caroline S. Cooper, Director
OJP Drug Court Clearinghouse and
Technical Assistance Project
American University

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## I. Introduction

It is common for substance abuse treatment programs, probation departments and courts to place restrictions on alcohol consumption by persons under their care or jurisdiction for drug- or alcohol-related offenses. These restrictions are imposed because of the following presumptions:

> The further use of alcohol by defendants already involved with alcohol or other drugs can lead to other addictions.
>
> The use of alcohol by such defendants can trigger cross-addictions, with the result that the "drinker" will revert to his/her old drug-using activities because of the physiological, psychological or sociological effects of the alcohol—used either by itself or in conjunction with other drugs.

Despite the nearly universal acceptance of total sobriety policies for alcoholics and other addicts by treatment providers and, in particular, by drug courts, very little has been written in support of such policies for the layperson not specially trained in addiction medicine.

The purpose of this issues paper is to provide, in a simple and unscientific format, the rationale for such policies and to address frequently asked questions regarding these policies that have emerged from the drug court experience.

## II. The Physiological Effects of Alcohol and Other Drugs

All human beings instinctively seek to satisfy such basic needs as obtaining food, water, shelter, sexual gratification and other forms of pleasure. Each of these drives results in one of two mental/emotional states:

1. If the drive is not fulfilled, the person experiences frustration, anxiety, irritability and/or anger.

2. If the drive is fulfilled, the person experiences a reward—manifested in feelings of pleasure, satisfaction and well-being.

Each "drive state" is located in a specific part of the brain and is connected to the brain's pleasure centers. When a drive is satisfied, brain chemicals, or *neurotransmitters,* such as dopamine, endorphin, norepenephrine and serotonin, are released in the message centers of the brain, causing the person to experience pleasure.

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Repeated introduction of alcohol and other drugs into the human neurological system triggers a release of dopamine, serotonin or endorphin in the pleasure centers of the brain. This release upsets the brain's ability to naturally release and replenish its chemical reservoirs. Thus, the person becomes unable to attain feelings of pleasure and well-being without using alcohol or other drugs.

*Stimulants* (e.g., amphetamines, cocaine) release dopamine, which results in the individual experiencing a sense of excited euphoria. *Depressants* (e.g., barbiturates, benzodiazepines, methaqualione) release endorphin, which causes the individual to experience a sense of calm euphoria. Alcohol increases the release of serotonin, which is responsible for controlling such feelings as the desire for food and water, sexual responses and aggression. The brain's response to the *artificially stimulated* release of neurotransmitters is more intense than when instinctive drives are allowed to emerge naturally. Moreover, as the message centers are bombarded by an overflow of neurotransmitters, additional receptors are created to process the excess stimuli.

When the stimulation is exhausted, reduced or withheld, "frustrated" receptors are left with nothing to process. With natural neurotransmitter levels then below normal, the brain will strive to replenish them and will, for a time, be insensitive to the natural chemicals that exist in the body that might otherwise have responded for this purpose. The mental/emotional state thereby created is referred to as "craving."

When an individual who has been using alcohol or other drugs tries to abstain from them, the neurological damage caused by this receptor insensitivity leads the user to experience the state of sobriety as a feeling opposite to the state of euphoria. Without the artificial pleasure and stimulation induced by alcohol or other drugs, the individual experiences a profound, and often prolonged, inability to experience pleasure through normal means. Instead, the individual experiences unfulfilled instinctive drives, resulting in increased dysphoria, anxiety, anger, frustration and craving.[1]

## III. The Interaction of Alcohol with Other Drugs

Alcohol, taken by itself, has the effect of a central nervous system (CNS) depressant. However, when mixed with other drugs, alcohol can produce additional reactions, such as the following:

Increase the sedative effect of CNS depressant drugs.
Inhibit a drug's metabolism by competing with the drug for

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[1] The above material was adapted from resources provided by S. Alex Stalcup, M.D.

the same enzymes. This prolongs the drug's availability in the system, thereby increasing the risk of harmful side effects.

Transform some drugs into toxic chemicals, damaging the liver or other organs.[2]

The chart below summarizes the physiological and clinical attributes of major categories of drugs and their interaction with alcohol.

**Physiological Attributes of Major Categories of Drugs and Their Interaction with Alcohol**

| Drug | Physical Indications of Abuse | Clinical Symptoms of Withdrawal and Treatment Issues | Effect of Interaction w Alcohol |
|---|---|---|---|
| Alcohol (booze, liquor)<br>Other forms: ethanol, ethyl alcohol | Drowsiness, state of sedation, excitement, exhilaration, stumbling, staggering, irrationality, irritability, loss of control, violent behavior, slurred speech, blackouts, aroma | Hypertension, sweating, anxiety, panic, insomnia, tremors, seizures, hallucinations, weakness, lack of energy, cravings, disorientation, nausea, vomiting | NA |
| Marijuana (grass, pot, weed, bud, joint, reefer, cubie, dope) | Dry mouth and throat, bloodshot eyes, "high" (2-4 hrs) indicated by giggling/laughing, altered sense of time, impaired immediate recall, slowed motor skills and reaction time, distorted perceptions. Use can lead to arrested mental/emotional development and memory loss. | No specific withdrawal syndrome has been identified, but the following are common to THC users: insomnia, hyperactivity, decreased appetite. Users can test positive for several weeks following use. | Exacerbates sedative aff and increases level of intoxication from both d |
| Cocaine (coke, snow, nose candy, toot)<br>Forms: powdered (snorted), cocaine hydrochloride (injected), rock or crack | Mood elevation/euphoria, increased energy/alertness, decreased appetite, insomnia, anxiety, irritability, sense of | "Crash" up to 4 days after use, consisting of three phases:<br>Phase I: 8 hrs-4 days<br>Phase II: 1-15 weeks<br>Phase III: indefinite | Potentially very dangero because alcohol increase blood pressure and weak portions of the heart wal making client more |

[2] *Alcohol Alert*. National Institute on Alcohol Abuse and Alcoholism. No. 27 PH355. January 1995.

| | | | |
|---|---|---|---|
| | increased strength, increased sex drive | Symptoms: depression 1-2 years, agitation, paranoia, high craving, weakness, fatigue, strong desire to sleep, eating binges<br>Length of withdrawal and relapse potential are high. Treatment must address depression and paranoia that can develop. Individual must find alternatives to simulate brain rebalancing, must force activity and meaning into life. | susceptible to overdose<br><br>During the early stages c drug use, alcohol may exaggerate the effect of c drugs, while during the l stages it may mitigate sl the stimulant effects; ho this is not an exact scien and regardless of the sta drug use, alcohol will ha negative effect |
| Sedatives-Hypnotics (sedatives, barbs, downers, goofballs, reds, ludes)<br>Forms: tablets, pills, capsules (can be injected) | Similar to alcohol but aggression less likely: disinhibition, euphoria, massive mood swings, drowsiness, slurred speech, confusion and disorientation, impaired judgment | Anxiety, irritability, restlessness and agitation, tremors of hands and eyelids ("blinking spasm"), weakness, insomnia, seizures 1-7 days after last use, fever, psychosis, suicidal thoughts | Depresses cardiac and pulmonary functions, se drowsiness, possible con fatal respiratory depressi |
| Opiates<br>Related drugs: opium, morphine, codeine, heroin (junk, snuff, horse, scag, smack), dilaudid, percodan, methadone, Demerol, Darvon, lortab | Severe pupil constriction, euphoria, slowed speech, respiratory failure, itching, constipation, sedation/ drowsiness, nausea and vomiting (occurs early and goes away), lowered bodily functions (pulse, temperature, blood pressure, reflexes) | Anxiety, panic insomnia, yawning, tearing eyes, runny nose, sweats, goosebumps, muscular twitches, muscle aches and cramps (severe), "bones ache", diarrhea, nausea and vomiting, increased bodily functions, physical withdrawal often accompanied by fear ("I'm dying"), panic, anxiety. Use of a nonnarcotic, such as acupuncture, clomidine or narcan, can assist withdrawal. | Enhances the sedative ef of both alcohol and opia increasing the risk of ov |
| Hallucinogens<br>LSD: acid, psilocybin, mushrooms, silly putty, mescaline, peyote buttons, morning glory seeds, heavenly blue, seeds, nutmeg, "penitentiary acid"<br>STP (serenity, tranquility, peace, designer drugs) | Altered perception (all senses affected), impaired cognitive functions, euphoria, anxiety, depression, "religious" or mystical experiences, psychosis, delusional thinking, depersonalization and disassociation | No withdrawal syndrome, but flashbacks possible for weeks or months, with delusional, episodic psychosis, fear of flashbacks, fear of losing one's mind | Specific results of intera unknown |

# IV. Frequently Asked Questions

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**Question:** What physiological effect does alcohol have on the brain?

**Response:** Alcohol is a CNS depressant. It is carried through the body to the brain and continues to depress brain responses until the liver has had the chance to oxidize the alcohol from acetaldehyde into water, carbon dioxide and energy. The average liver is capable of oxidizing about one-half ounce of alcohol per hour, which is the amount of alcohol in the standard drink. As alcohol enters the system, it passes through the three main areas of the brain by way of the bloodstream:

the *frontal lobe* (cortex), which controls judgment and reason (caution, reasoning, common sense and inhibition are diminished when this portion of the brain is exposed to alcohol);

the *midbrain* (limbic), which regulates muscle control as well as governs emotions and reward sites (gait, movement and emotions, ranging from depression to euphoria, are affected by alcohol in this part of the brain); and

the *hind brain* (brain stem), which controls bodily functions, such as heart rate, respiration and body temperature (excess depression in this area of the brain can result in a variety of physical consequences, including death).

**Question**: Does consumption of alcohol lead to the use of other drugs?

**Response**: The introduction of alcohol into the frontal lobe of the brain affects reasoning, judgment and self-control. When under the influence of alcohol, persons who would normally have enough invested in their recovery not to partake of controlled substances experience mild euphoria and loss of inhibition, which often results in behaviors that would not occur if the individual were sober. Clients regularly indicate that drug use episodes after a period of sobriety occur after alcohol consumption.

**Question**: Is alcohol a "gateway" drug leading to increased drug abuse?

**Response**: A great deal of research has been conducted on this topic that supports the finding that alcohol is a gateway drug and, in many cases, leads to more serious drug addictions.

In a 1996 study, the National Center on Addiction and Substance Abuse at Columbia University reported the following:

> More than 67% of individuals who started drinking before age 15 went on to use other illicit drugs, compared with less than 4% of those who never drank....An individual who starts drinking before the age of 15 is 101 times more likely to use cocaine than someone who never drank.

The study further concluded that children who drink are 50 times more likely to abuse cocaine than those who don't drink.

A review of 5% of the active cases in the Las Vegas, Nevada, adult drug court program concluded that 27% of the program participants whose drug of choice was either cocaine, methamphetamine and/or heroin began their drug use with alcohol. Another 29% began by using alcohol and marijuana together and then progressed to "harder" drugs. By combining these two groups with the 30% whose initial drug of abuse was marijuana, the conclusion is obvious. Eighty-six percent (86%) of all program participants whose current drug of choice is not alcohol or marijuana began their drug-using behavior with one or both of these drugs.

**Question:** What is the effect of combining alcohol and other drugs of abuse? Does the alcohol enhance the effect of other drugs? Does it balance out the effect of stimulants or otherwise counteract their negative side effects?

**Response**: The synergistic effect of poly drug use, when alcohol is one of the drugs, is complex. Many variables must be considered in responding to this question. What are the drugs? Are they stimulants or depressants? How much was taken and over what period of time?

<u>Alcohol Combined with Depressants</u>

The combination of alcohol, which is a depressant, with other CNS depressants, such as barbiturates, can create a dangerous physical situation for the individual involved. Both the alcohol and the barbiturate, as depressants, slow down almost all bodily functions. What would not be a dangerous amount of either drug by itself can, when they are taken together, create an interaction in the body leading to overdose. If not caught in time, this overdose of alcohol with another CNS depressant will undoubtedly

result in major physical consequences for the individual, possibly death.

Alcohol Combined with Stimulants

Some addicts use alcohol to help counteract the effect of CNS stimulants, such as cocaine or amphetamines. Marijuana is also used for this purpose, but since alcohol is a legal drug, it is easier to come by. Both alcohol and marijuana are used by addicts to self-medicate (e.g., relax, "mellow out") and to counteract the "tweaking" effect of stimulants.

The most common stimulant effects that alcohol or marijuana can counteract are anxiety, shakes and tweaking.

**Question:** Why do most treatment programs require that drug users not use alcohol?

**Response:** *Physiologically,* alcohol may affect the brain by altering the levels of certain neurotransmitters. Some neurotransmitters are diminished, while others (dopamine and serotonin, for example) are stimulated. In either case, the brain is forced to compensate for either the decrease or increase of these neurotransmitters within the brain chemistry. In the case of an increase in stimulated neurotransmitters, the brain produces more receptors to interact with the increase in stimulated neurotransmitters and inhibits receptor sites for those neurotransmitters that have been diminished. When the alcohol is removed, the brain chemistry becomes greatly unbalanced, resulting in cravings and other withdrawal symptoms, such as anxiety and disorientation.

Heavy use of alcohol over a prolonged period can result in additional physical problems, including brain lesions, Wernicke-Korsakoff syndrome (short-term memory loss), stomach ulcers and cirrhosis of the liver. The dangers of developing one or more of these conditions is particularly high among drug court populations, where most of the individuals suffer from compulsive, addictive personalities manifested in a wide range of compulsive behaviors. A compulsive cocaine user, for example, exhibits a high likelihood of becoming a compulsive eater, gambler or alcoholic. Great care must therefore be taken to guard against drug addicts becoming addicted to other substances.

*Psychologically,* addicts do not drink simply because they like the taste of alcohol any more than they use cocaine because it is refreshing. Despite any arguments to the contrary, drinking by an addict is simply a form of drug-seeking behavior, with the depressant effect of the alcohol being far more significant than the taste. If this were not true, addicts would choose to drink nonalcoholic beer

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or wine. The psychological urge of an addict to take something to help relax or to feel different is a red flag that relapse is under way and, without intervention, further drug use will occur.

*Sociologically,* most drug addicts and alcoholics associate certain people, places and things with drinking and using drugs. Even moderate drinking can lead an addict to revert to a lifestyle and frequent an environment associated with prior drug-using behavior. Such an environment can trigger future abuse. One of the true clichés of recovery is that *one must change playgrounds and playmates*. Drinking can open the gate to the old playground.

**Question**: Upon what basis do drug courts require that drug court participants or persons court-ordered into treatment also abstain from a legal substance, such as alcohol?

**Response**: Legal precedent has been established supporting the required abstinence from alcohol by persons who have a documented history of substance abuse when it is clear that future use of alcohol may lead to future criminality. In *People v. Smith* (1983) 145 Cal. App. 3d 1032, 1034, the California Court of Appeals, Fourth Appellate District, issued a leading decision in this regard, maintaining that alcohol consumption lessens self-control and thus may facilitate a reduction in the drug user's ability to abstain from further drug use. In issuing the opinion, the court cited *Pollack, Drug Use and Narcotic Addiction* (1967), University of Southern California Institute of Psychiatry and Law for the Judiciary, pp. 1-2, 4-5.

More recently, the California Court of Appeals upheld the prohibition regarding alcohol use for a probationer convicted of cocaine possession in *The People v. Gloria Elizabeth Beal*, Ct. of Appeal, Fourth Appellate District, Division One, State of California, D027755, Super. Ct. No. SCD 1 2429.

Persons entering treatment courts, or drug courts, are required to sign petitions to participate and voluntarily place themselves into treatment programs that operate under the jurisdiction of the court. These petitions generally contain a statement acknowledging the required restriction on alcohol use, for the reasons stated in the response to the previous question, and a statement acknowledging that a violation of this rule could result in the application of criminal sanctions under the court's contempt powers. Persons sentenced to probation generally sign similar acknowledgments regarding the prohibition of alcohol use as a condition of probation. The prohibition against alcohol use is further spelled out in most probation or parole agreements, with an acknowledgment signed by the defendant that a violation of the no drugs or alcohol rule could result in the filing of revocation

procedures. *People v. Bravo* (1987) 43 Cal. 3d 600, upheld the court's requirement of a defendant's waiver, as a condition of probation, of his or her Fourth Amendment right regarding searches that might turn up evidence of alcohol use.