The Interrelationship Between
the Use of Alcohol and Other Drugs:
Summary Overview for Drug Court Practitioners

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DRAFT
Foreword

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

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. It addresses both the interaction of alcohol with other drugs as well as the affect of alcohol on the system of individuals who have been using controlled substance, even if they are currently abstinent. This 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. It is, however, by no means a definitive treatment of them and should be used as a foundation for working with experts in the field to further address these issues in local drug court programs.

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The pharmacological affect 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 that 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
1. Introduction

It is very common for substance abuse treatment programs, probation departments and courts, in general, to place restrictions regarding alcohol consumption on persons under their care or jurisdiction for drug or alcohol-related offenses. These restrictions are imposed because of a presumption that:

- the further use of alcohol by defendants already involved with alcohol or other drugs can lead to other addictions; and

- 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 both alcoholics and other addicts by treatment providers and drug courts, in particular, very little has been written in support of such policies for the lay person not specially trained in addiction medicine.

The purpose of this "issues paper" is, therefore, 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:

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

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

Each "drive state" is located within a specific part of the brain and is connected to the brain’s pleasure centers. When a drive is satisfied, a complex interaction of chemicals, or neurotransmitters, results in the release of these neurological chemicals, such as dopamine, endorphin, norepenephrine, serotonin, for example) within the message centers of the brain.

The introduction of alcohol and other drugs into the human neurological system upsets the system’s neurochemistry and triggers a release of neurotransmitters within the pleasure centers of the brain. This release of neurotransmitters impacts the brain’s own ability to naturally replenish its chemical reservoirs.

Repeated use of alcohol and other drugs stimulates the release of available dopamine, serotonin or endorphin in the brain which begin to replace the brain’s own natural transmitters that would otherwise trigger associated feelings of pleasure and well-being. 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 and/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 state of 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.

III. The Interaction of Alcohol with Other Drugs

Alcohol, taken by itself, has the effect of a Central Nervous System (CNS) depressant. However, alcohol, when mixed with other drugs, can produce additional reactions which may:

- increase the sedative effect of CNS depressant drugs
- inhibit a drug’s metabolism by competing with the drug for 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.
The chart below provides a summary of the physiological and clinical attributes of major categories of drugs and their interaction with alcohol.

**Chart: Physiological Attributes of Major Categories of Drugs and their Interaction with Alcohol**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Physical Signs/ Indicia of Abuse</th>
<th>Clinical Signs/ Symptoms of Withdrawal/ Treatment Issues</th>
<th>Effect of Interaction with Alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol (ethanol, ethyl alcohol, booze, liquor)</td>
<td>Drowsiness; state of sedation; excitement; exhilaration; stumbling; staggering, irrationality; irritability, loss of control, violent behavior, slurred speech, blackouts, aroma</td>
<td>Hypertension; sweating; anxiety; panic; insomnia; tremors; seizures; hallucinations; weakness, lack of energy, cravings, disorientation, nausea, vomiting</td>
<td>NA</td>
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<tr>
<td>Marijuana (grass, pot, weed, bud, Joint, reefer, cubie, dope)</td>
<td>Dry mouth &amp; throat; bloodshot eyes; &quot;high&quot; (2-4 hrs) indicated by giggling/laughing; altered sense of time; impaired immediate recall; slowed motor skills and reaction time; distorted perceptions; can lead to arrested/mental/emotional development; memory loss</td>
<td>No specific withdrawal syndrome has been identified but the following are common to THC users: insomnia; hyperactivity; decreased appetite; can test positive for several weeks following use</td>
<td>Exacerbates sedative affect and increase level of intoxication from both drugs</td>
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<td>Cocaine (coke, snow, nose candy, toot)</td>
<td>Mood elevation/euphoria increased energy/ alertness; decreased appetite; insomnia; anxiety; irritability;</td>
<td>&quot;Crash&quot; up to 4 days after use, consisting of: Phase I: 8 hrs - 4 days; Phase II: 1-15 weeks; Phase III: indefinite; depression 1-2</td>
<td>Potentially very dangerous because alcohol increases blood pressure and weakens portions of the heart wall, making client more susceptible to overdose.</td>
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<td>Forms: powdered (snorted), cocaine hydrochloride (injected); rock or crack</td>
<td>years; agitation; paranoia; high craving; weakness; fatigue; strong desire to sleep; eating binges; length of withdrawal and relapse potential high; need to address depression and paranoia that can develop; need to find alternatives to simulate brain rebalancing;</td>
<td>days; Phase II: 1-15 weeks; Phase III: indefinite; depression 1-2 years; agitation; paranoia; high craving; weakness; fatigue; strong desire to sleep; eating binges; length of withdrawal and relapse potential high; need to address depression and paranoia that can develop; need to find alternatives to simulate brain rebalancing;</td>
<td>During the early stages of drug use, alcohol may exacerbate the effect of other drugs while during the later stages it may mitigate</td>
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<td>Sedatives-Hypnotics (sedatives, barbs, downers, goof balls, reds, ludes; forms: tablets, pills, capsules (can be injected))</td>
<td>Similar to alcohol but aggression less likely; disinhibition, euphoria, massive mood swings; drowsiness; slurred speech; confusion &amp; disorientation; impaired judgment</td>
<td>Anxiety; irritability; restlessness &amp; agitation; tremors of hands and eyelids (&quot;blinking spasm&quot;); weakness; insomnia; seizures 1-7 days after last use; fever; psychosis; suicidal thoughts</td>
<td>Depresses cardiac and pulmonary functions; severe drowsiness; possible coma or fatal respiratory depression</td>
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<td>Opiates (related drugs: opium, morphine, codeine, heroin, dilaudid, percodan, methadone, Demerol, Darvon, lortab; Heroine’s other names: junk, snuff, horse, scag, smack)</td>
<td>Severe pupil constriction; euphoria; slowed speech, respiratory failure; itching; constipation; sedation/drowsiness; nausea&amp;vomiting (occurs early and goes away); lowered bodily functions (pulse, tem; blood pressure, reflexes)</td>
<td>Anxiety; panic insomnia; yawning; tearing eyes; runny nose; sweats; goose bumps; muscular twitches; muscle aches &amp; cramps (severe); &quot;bones ache&quot;; diarrhea; nausea &amp; vomiting; increased bodily functions; physical withdrawal often accompanied by fear (&quot;I’m dying&quot;); panic; anxiety; (use of nonnarcotic, such as acupuncture; clomidine; narcan can assist withdrawal)</td>
<td>Enhances the sedative effect of both alcohol and opiates, increasing the risk of overdose</td>
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<td>Hallucinogens (LSD: acid; psilocybin; mushrooms; silly putty; mescaline; peyote buttons; morning glory seeds; heavenly blue; seeds; nutmeg; &quot;penitentiary acid&quot; STP: serenity, tranquility, peace; designer drugs)</td>
<td>altered perception (all senses affected); impaired cognitive functions, euphoria, anxiety, depression, &quot;religious&quot; or mystical experiences; psychosis; delusional; depersonalization and disassociation</td>
<td>no withdrawal syndrome; flashbacks possible for weeks or months; delusional, episodic psychosis; fear of flashbacks; fear of losing one’s mind</td>
<td>Specific results of interaction unknown</td>
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IV. Frequently Asked Questions

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

Response: Alcohol is a Central Nervous System (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 effected 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.)

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

Response: The introduction of alcohol into the frontal lobe of the brain effects 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 normally not occur if the individual was sober. Clients regularly indicate that drug use episodes after a period of sobriety frequently occur after alcohol consumption.

III. 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 (CASA) reported that:

"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.

IV. 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?

Alcohol combined with Depressants

The combination of alcohol, which is a depressant, with other Central Nervous System (CNS) depressants, like barbiturates, for example, can create a very dangerous physical situation for the individual involved. Both the alcohol and the barbiturate, as depressants, slow down almost all bodily functions. What would be a non-dangerous amount of either drug by itself can, when taken together, create an interaction in the body characteristic of overdose, with very serious consequences. If not caught in time, the resulting overdose of alcohol with another CNS depressant will undoubtedly result in major physical consequences for the individual, if not death.

Alcohol Combined with Stimulants

Some addicts use alcohol to help counteract the effect of CNS stimulants, such as cocaine or amphetamine. 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".

22. 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 of time 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 which are 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 from 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 non-alcoholic beer or wine. The psychological urge of an addict to take something to help relax or to feel different is a huge red flag that the relapse process is well under way and, without intervention, further drug use is just a matter of time.

Sociologically, most drug addicts and alcoholics associate certain people, places and things with using drugs and or drinking. Even moderate drinking can lead to reverting back to a lifestyle and frequenting an environment that was associated with prior drug using behavior which can become a trigger for future abuse. One of the key cliche’s of recovery is that one must change their playgrounds and playmates. Drinking can open the gate to the old playground.

VI. 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.


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, and accompanying acknowledgments, generally contain a statement regarding the petitioner’s acknowledgment regarding the required restriction on alcohol use, for the reasons stated in the response to Question Five above, and an acknowledgment 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 regarding 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 of his Fourth Amendment right regarding searches that might turn up evidence of alcohol use as a condition of probation.