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DRUG USE AND THE IMPACT ON MOTOR VEHICLE OPERATORS

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U.S. Department of Justice
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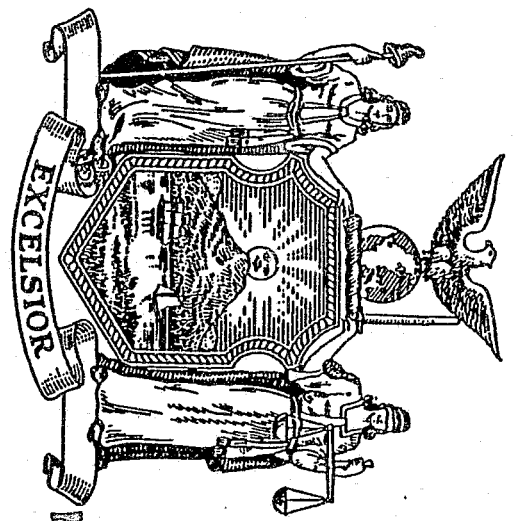
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INTRODUCTION

Drug Oriented Mobile Society

We are a drug-oriented and mobile society, and both trends are expected to continue. These two trends are not complementary when we consider that more individuals -- pilots, train engineers, and motor vehicle operators -- will be traveling more miles with greater exposure to the dangers of psychoactive drug use and misuse. The need to educate the public about drugs and vehicle operation is obvious.

Alcohol is the most widely used psychoactive drug in the world. For example, federal estimates identify 93 percent of the American population 12-17 years old as having used alcohol at least once in a 30-day period. The National Council on Alcoholism estimates that there are 15 million alcoholics and problem drinkers in America, with an annual cost to society in the neighborhood of \$60 billion.

There are over 200 herbal drugs, over 100,000 over-the-counter drugs, over 20,000 prescription drugs, and approximately 500 illicit drugs. Prescriptions of depressants are the most common. Valium, a depressant, is the most common tranquilizer or anti-anxiety agent. Americans spend more than \$1 billion per year on tranquilizers alone. There is widespread unintentional and intentional abuse of legal drugs, especially in combination with alcohol.

In New York, we have a serious illicit drug problem. Estimates among our young adult population identify 35.2 percent as being recent users, and 10.5 percent of which are heavy abusers. Marijuana, Cocaine, and Crack are key substances affecting highway safety, and many users mistakenly believe that these drugs enhance their performance in operating vehicles, trains or planes.

Traffic Safety Problem

The operation of a motor vehicle -- car, truck, or motorcycle -- demands full control of one's senses and motor responses. This is especially true for the inexperienced driver -- the teen -- who has not yet perfected the coordination that is so vital in traffic emergencies. When the inexperienced driver is impaired by psychoactive drugs, an automobile crash is highly probable.

The most common tragedy occurs on the road at high speeds, usually after dark. Impaired by psychoactive drugs, the young person may feel afloat, as if flying on a magic carpet, and very confident. The eyes fail to focus; traffic is distorted; sounds are exaggerated.

Alcohol is the number one psychoactive drug traffic safety problem. Drunk drivers kill 25,000 men, women, and children each year on America's highways, and injure 750,000 more. Estimates indicate that 90 percent of the individuals who drink also drive.

While the historical extent of the alcohol problem is well documented, the role of other psychoactive drugs remained unknown until recently, because of both technological and legal limitations. First, there is no easy, accurate, widely available, non-invasive test for drugs as the breathalyzer test is for alcohol. Accurate testing for drugs involves drawing blood or taking urine samples. From the legal standpoint in most states, drivers arrested for driving while intoxicated have had the option of being tested by breathalyzer, blood or urine. Obviously, those under the influence of drugs will opt for a breathalyzer test, which can only measure alcohol content.

As drug use and abuse expanded in the 70's, many researchers began studying the role of other psychoactive drugs in traffic safety problems. We now have a fairly clear indication of the scope of the problem.

Estimates now reveal that 20-40 percent of traffic fatalities involve other drugs — usually in combination with alcohol.

Next to alcohol, marijuana is the most widely used substance in driving — the frequency in detection ranging from 1.6 percent to as high as 37 percent in samples of younger drivers. The growing menace is fanned by the mistaken belief by some that marijuana enhances driving skills. A growing trend is to use marijuana while driving. Drug paraphernalia companies are marketing dashboard pot pipes to facilitate this dangerous practice. An additional concern is that new marijuana strains are more potent.

The combination of marijuana and alcohol is common. Studies on fatal and nonfatal accidents reveal that when marijuana is a factor, drivers also had relatively high blood alcohol concentrations (BAC) in up to 88 percent of the cases.

Following marijuana are tranquilizers, which may account for 10 percent of the accidents. Again, tranquilizers are infrequently used alone; alcohol use frequently accompanies tranquilizer use.

Cocaine use is expanding, and a California study indicates that cocaine is in fact now the third most common psychoactive drug in traffic accidents.

We know that all abused drugs can affect driving performance. The section "Specific Drugs Commonly Abused and Their Impact on Driving" details these effects.

Many prescription drugs — usually those prescribed for pain, anxiety, blood pressure, heart disease, arthritis, and/or common colds — can cause drowsiness. In combination with alcohol, prescription drugs can be a traffic safety problem. Similarly, some OTC drugs also affect driving. The section "Common Medical Drugs and Possible Side Effects Influencing Driving" details these effects.

WHY USE DRUGS?

General

The growth of psychoactive drug use is directly related to the perceived beneficial results without fully understanding the risks. People take psychoactive drugs because they change our awareness, vary our conscious experience. Some specific reasons include:

- To aid religious practices
 - . Throughout history drug-induced states have been used to further religious experiences.
- To explore self
 - . Psychoactive drugs have been used by many to explore states of consciousness. Again, the risks are not taken into consideration.
- To promote and enhance social interaction
 - . In particular, alcohol and marijuana are the social promoters; their use is worldwide. To a lesser extent, some mistakenly believe that narcotics, such as heroin, promote social interaction. These drugs are dangerous; users do not factor the risks.
- To treat disease
 - . Opium, morphine, and alcohol were the 19th century drugs. The 20th century delivered an explosion of new drugs to treat disease.
- To stimulate creativity and performance
 - . Writers and artists have frequently used drugs because they wrongly believe that creativity is enhanced.
- To rebel and establish an identity
 - . Because some drugs are taboo and illegal, their use has been a vehicle in expressing rebellion and in establishing an identity.
- To go along with peer pressure
 - . Many people do not seek out drugs, but get involved because the "group" uses them. This is particularly prevalent among young users.

- To promote the effect of one drug by using others
 - . Many may use two or more licit and/or illicit substances to boost the high.
 - . Alcohol is the most common drug used in combination with other depressants and/or stimulants. Some use alcohol to make withdrawal from another substance supposedly easier.

Driving and Drugs

Some mistakenly believe that drugs enhance driving skills. Some combinations include:

- Some drivers take stimulants, such as amphetamines, because they wrongly believe it will counter drowsiness caused by alcohol.
- Some drivers believe cocaine and/or marijuana improve driving performance because supposedly concentration is heightened. Accentuated drowsiness occurs as the effect diminishes.
- In order to avoid detection at sobriety check points, some young drivers use a very moderate amount of alcohol to mask intoxication caused by other drugs. The drowsiness factor is increased with this combination.

While low dosages of some stimulants may promote alertness, any drug combination is dangerous and unpredictable.

COMMON DRUGS AND THEIR IMPACT ON DRIVING

Drugs and the Mind

Alcohol and other psychoactive drugs alter mood and affect the mind by interfering with the central nervous signal system. Communication is the brain's major industry. Whole systems are involved in regulating different aspects of personality and bodily functions. The limbic system, for example, has a lot to do with regulating emotion. Because benzodiazepine tranquilizers such as Valium and Librium manage to slow down communication in this system, they can relieve perceived symptoms of anxiety.

Alcohol and drugs enter the central nervous system via the bloodstream, either directly (by injection into a vein) or indirectly (by injection under the skin or by absorption through membranes in the nose, bowels, lungs, or stomach). The speed and degree with which effects are felt depend, in large measure, on how much and how quickly the drug or alcohol gets to the central nervous system. The way a drug is taken helps determine speed and extent of reaction.

In the central nervous system, most psychoactive drugs affect neurotransmitters. Drugs can stimulate, inhibit, or halt the release of neurotransmitters. For example, some neurotransmitters inhibit rather than convey impulses. Certain amino acids that appear to function in an inhibitory manner will reduce the rate at which impulses travel. It is on these neurotransmitters that Valium acts to retard activity in the limbic system, a structure in the brain influencing emotion and other functions.

Drugs do not affect all users the same way, and few have only a single effect. Nevertheless, we describe drugs by their potency in terms of the average effective dose — how much is required to produce the desired or primary effect in an average user. This can vary greatly among drugs that may appear quite similar, for potency is determined not only by ingredients, but also by how it is absorbed, what happens if it must pass through the liver, and how long it remains in the body.

Of greater significance than potency is a drug's maximum effect, the upper limit of reaction. Although caffeine, for example, will certainly stimulate the central nervous system, no amount of caffeine will match the effect of amphetamine, just as no amount of aspirin will relieve as much pain as morphine.

For every drug and each of its effects, pharmacologists can chart a response curve showing the dosages needed to produce various levels of response. The steeper the slope of this curve (how quickly it rises from minimum to maximum effectiveness) the smaller the difference between the amount required to produce any effect and the amount that will produce all the effect of which the drug is capable. A very steep slope, applicable to many depressants, indicates a small margin for error and great potential for overdose. The greater the slope or impact, the greater the rebound or low. Such lows are frequently associated with drivers' drowsiness and blurred vision.

The growing trend of poly-substance use involves taking two or more substances simultaneously. This process, known as synergism, results in a sum effect greater than the impact of each substance. Alcohol is the most common substance in poly-substance cases.

Drugs Blood Levels and Drug Groups

While studies clearly indicate drug performance impairment, studies which attempt to correlate drug blood levels with relative frequency of accidents have been hindered because most drugs do not exhibit a simple relationship between drug blood level and impairment level. This is in contrast to alcohol, in which the degree of behavioral impairment is highly correlated with blood alcohol concentration (BAC). Most other drugs do not have the relatively simple absorption, distribution and metabolism characteristics of alcohol. For many drugs, absorption rates vary greatly, and distribution throughout the body is not uniform. Accordingly, the resulting degree of impairment is uncorrelated with the drug blood level.

Depressants (alcohol, barbiturates, barbiturate-like, narcotics, etc.) are the most frequently prescribed, used and abuse substances. They are more dangerous than stimulants. Aside from the traffic safety problem, depressants produce a wider variety of effects — from relaxation to euphoria in low dosages, to coma and even death at higher dose levels. Depressants in low dosages give a driver a false sense of confidence; higher dosages affect motor coordination, vision, judgment, and the ability to react to emergency situations. Because withdrawal from a depressant high is often a negative experience, other substances, such as alcohol and/or other depressants, are commonly used. The additive factor of multiple depressant use is particularly dangerous because the drowsiness factor is accentuated, even to the point of death.

Stimulants (amphetamines, cocaine, etc.) on the other hand, stimulate the central nervous system. Stimulants, Crack in particular, give users a sense of power, concentration — a "can do" feeling. Because of this, many drivers use stimulants, particularly amphetamines and Cocaine/Crack because they mistakenly believe their driving performance is improved. Stimulants do affect driving. Abuse or high dosage levels of hallucinogens, in particular, lead to unpredictable results.

Marijuana, neither a stimulant nor a depressant, has the characteristics of both. THC or tetrahydrocannabinol is the active ingredient, and studies have demonstrated that THC levels correspond to driving capabilities. Marijuana and alcohol are the most commonly used combination; synergistic effects, which are unpredictable, make this a clear driving hazard.

Specific Drugs Commonly Abused and Their Impact on Driving

ALCOHOL

Properties

Beverage alcohol (ethanol) is the most widely-used psychoactive drug. It can be produced synthetically, or naturally by fermenting fruit, grain, or vegetables.

In moderation, alcohol promotes relaxation and restfulness. Higher levels induce sleep or even coma. Because of these properties, alcohol is known as a sedative-hypnotic or depressant.

Alcohol, when absorbed into the bloodstream, depresses the central nervous system. Once absorbed, it is distributed uniformly in all body fluids and enters the brain easily. The rate of absorption depends on the kind of drink and on the contents of the stomach. If the stomach is empty, absorption will be more rapid and effects more acute than if the stomach were full. The effects will depend on the amount consumed, the circumstances of consumption, the body size, and experience of the drinker.

Drivers unaccustomed to alcohol use are more likely to show signs of impairment than are conditioned drinkers who have learned to compensate for impaired behavior. The range of physical reactions to varying doses of alcohol is vast. One or two drinks may induce talkativeness, slight flushing, and may also reduce the drinker's inhibitions so he appears more expansive and more animated. One person may become emotional or amorous, another aggressive and hostile.

Tolerance to most of the immediate effects of alcohol develops with frequent use. Regular heavy drinkers may be able to consume two or three times as much alcohol as novice drinkers, and will usually have to drink more and more in order to achieve the desired effect. Extremely high doses can kill if the central nervous system is depressed to the point that certain critical bodily functions, like breathing, cease altogether.

Effects/Alcohol Only

Alcohol in even moderate doses generally reduces one's performance in tasks that require physical coordination or mental agility.

A blood alcohol content (BAC) of .05% or higher produces some driving impairment in all people. In a 160-pound person, this level requires only two ordinary drinks (1 1/4 ounces of liquor in each, two bottles of beer, or 10 ounces of wine) in a short time. It is usually the overall amount of alcohol consumed, not the beverage form, which is important.

Depending on BAC, alcohol results in:

- . impaired muscle coordination;
- . decreased peripheral vision, multiple vision blurring, dizziness, and night vision impairment;
- . slowed complex reaction time — a factor which particularly compromises an intoxicated driver's ability to track in emergency or unanticipated situations; and
- . drowsiness, with increased drowsiness after the high, carrying the potential of unconsciousness to coma.

In addition to the physical decrements, alcohol lowers inhibitions, thereby making a driver more aggressive, less defensive. Again, the BAC level usually is the determining factor. On the other hand, very high BAC levels can result in extremely defensive actions.

Effects/Alcohol and Other Substances

Alcohol is very commonly used with other substances. The primary combination, alcohol/marijuana, is more hazardous than using either substance alone, due to the synergism. The results are more unpredictable.

Alcohol, when used with like depressants such as tranquilizers and other sedative hypnotics, will synergistically boost the impairing effects, with increased drowsiness resulting when the high subsides. Death is even a possibility with this most dangerous combination of drugs.

Alcohol taken with stimulants such as amphetamines will give a driver a false sense of confidence and alertness. Generally, the results are unpredictable. Added drowsiness occurs after the high passes. Additionally, it is a common misbelief that coffee, exercise, or cold showers will stimulate and induce sobriety. Not so, these efforts give a false sense of alertness, but do not improve motor skills or reaction time.

Alcohol and hallucinogens result in totally unpredictable actions.

Alcohol combined with inhalants impact on drowsiness once the high subsides.

MARIJUANA

Properties

Marijuana and hashish come from the hemp plant, cannabis sativa, which grows throughout most of the tropical and temperate zones of the world. Marijuana is typically sold in the form of cut, dried leaves, stems and flowers of the hemp plant. It may be rolled in paper and smoked like a regular cigarette, or inhaled through pipes. Hashish oil is extracted from the hemp resin; a drop or two of the oil on a tobacco cigarette produces roughly the same effect as a marijuana cigarette.

While marijuana is neither a stimulant nor a depressant, it has features of both; many regard it as a mild psychedelic.

Marijuana has been used in the treatment of asthma, glaucoma, and nausea caused by cancer chemotherapy. The major active ingredient in marijuana and hashish is delta-tetrahydrocannabinol (THC). The exact nature of its action is not entirely understood, although it is believed to change to a psychoactive compound in the liver.

Unlike most other drugs, marijuana properties are not water soluble; thus traces can remain in the body for weeks. This is a complicating factor for law enforcement, because the positive result of a chemical test would not necessarily prove a driver was under the influence of marijuana at the time of arrest. Conversely, drivers using marijuana could be in possible jeopardy with law enforcement for days after use.

Some street names for marijuana are: "grass," "Mary Jane," "pot," and "smoke"; marijuana cigarettes are called "joints" or "reefers"; hashish is commonly referred to as "hash."

Effects

The effect sought in cannabis use is euphoria, an illusion of well-being and elation. This is usually accompanied by a state of altered perception, particularly of distance and time, and impaired memory and physical coordination.

Studies now show that the amount of THC can directly affect driving ability. While motor coordination is only minimally affected at low dose levels, it is clear that tracking capabilities are sensitive to the decrements of marijuana over a wide range of dosages and durations. This is because perceptual functions of importance for driving are clearly and greatly impaired, and would be expected to interfere with the ability of drivers to monitor the environment for important signals and potential dangers. The influenced driver's capability to react to unusual situations is then very much affected by marijuana.

Studies have also shown that:

- . some drivers are even more impaired a half-hour after they had "come down" and assumed they could drive normally;
- . marijuana impairment can last for at least four hours after a "joint";
- . drivers not familiar with the effects experience more driving problems than experienced users; and,
- . some drivers mistakenly believe their driving performance is better while under the influence, because their sense of concentration is perceived to be heightened.

There is no evidence, however, that emotional or attitudinal changes under the influence of marijuana would be likely to lead to increased risk-taking in a driving situation.

The most widely used drug combination involves alcohol and marijuana. Numerous studies point to the synergistic decrements. In particular, the driver's tracking ability is compromised when unusual or emergency situations arise. The results of this combination are also unpredictable. After the high, the two drugs promote drowsiness.

STIMULANTS - DRUGS THAT STIMULATE THE CENTRAL NERVOUS SYSTEM

Amphetamines to Related Stimulants

Amphetamines and Amphetamine-Like Drugs:

- . Dextroamphetamine (Dexedrine)
- . Dextroamphetamine and amobarbital (Dexamyl)
- . Dextroamphetamine and prochlorperazine (Eskatrol)
- . Methamphetamine (Methedrine, Crystal)
- . Amphetamine 10 mg.: dextroamphetamine 10 mg. (Biphetamine-20)
- . Amphetamine (Benzedrine)
- . Phenmetrazine hydrochloride (Preludin)
- . Methamphetamine (Desoxyn)
- . Diethylpropion hydrochloride (Tenuate, tepanil)
- . Phenteramine resin (Ionamin)
- . Mazindol (Sanorex)
- . Fenfluramine hydrochloride (Pondimin)
- . Phenteramine HCL (Fastin)
- . Methlypenidate (Ritalin)

Related Stimulants:

- . Benzphetamine (Didrex)
- . Chlorphentermine (Pre Sate)
- . Phendimetrazine (Plegine)

Cocaine, "Crack"

Properties, Amphetamines/Related Stimulants

These drugs produce excitatory effects in the central nervous system, characterized by increased wakefulness, alertness, feelings of increased initiative and ability, and depression of appetite. Taken in prescribed low-dosage levels, their effects on driving abilities are minimal.

Amphetamines have a high potential for abuse, and acute intoxication when combined with alcohol. The most popular are Benzedrine, Dexedrine, and Methedrine or Desoxyn. Excessive dosage, particularly when administered intravenously ("speed"), produces a delirious or psychotic state. The period of excitement and stimulation is followed by an after-depression. This tends to set off self-perpetuating use of these drugs in binges. Tolerance develops rapidly, sometimes accompanied by psychological dependence. Extreme usage can lead to convulsions, coma in fatal poisonings, and circulatory collapse.

Other characteristics are talkativeness, abnormal cheerfulness, increased initiative, irritability, restlessness and aggressiveness.

The drugs, when abused, are usually ingested, injected intravenously (amphetamine-speed), and smoked or "skin-popped" (subcutaneous injection).

Effects

As indicated, low dose levels have minimal impact on driving performance; their controlled use can assist because they promote alertness. However, because these drugs will boost alertness, they can also promote the delusion of over-confidence.

Since tolerance to amphetamines builds so quickly, some abusers tend to take them in staggering amounts — up to 300 or 400 milligrams daily. High dosage level results, applicable to driving capabilities, include dizziness, panic reactions, and hallucinations. Some high-dose abusers degenerate to total loss of control.

Some drivers use amphetamines to counter the effects of alcohol. Initially, this can prove effective in some cases. However, after the beneficial amphetamine reaction diminishes, accentuated drowsiness results. It should be noted that some studies indicate that there is no beneficial correlation in using amphetamines with alcohol — the combined use should be avoided. Coincidentally, some amphetamine abusers take alcohol or other depressants to counter the resulting depression from an amphetamine high. Again, this mix is dangerous in terms of driving capability.

Properties, Cocaine/"Crack"

Crack (sometimes called "Rock") is the street name for a more purified (freebased) form of cocaine that is smoked. Crack, which may be as much as 90 percent pure, is five to six times stronger than the cocaine normally purchased on the street.

Some users think that smoking is a less dangerous method of using the drug. But smoking Crack brings the vapors directly into the lungs, where they are immediately absorbed into the bloodstream; large doses of the drug are carried to the brain in a highly concentrated form. It is one of the most efficient ways of taking the drug, producing a rapid and intense, short-lived reaction. Crack use can produce acute intoxication and has a high potential for dependence, possible brain damage and other medical problems.

Effects

Crack's appeal is euphoria. Initially, the Crack high produces a false sense of power or confidence, thereby reducing defensive-driving instincts. Some drivers mistakenly believe that cocaine in fact dramatically improves their ability to drive by enhancing concentration. While some may experience elevated concentration, cocaine is a danger. The drug specifically narrows the driver's attention to only very specific tasks, thereby reducing skills in secondary tasks, i.e., peripheral vision observations. The influenced driver's capability to react to unusual situations, then, is very much affected. After the high, drowsiness sets in and the driver is in danger of falling asleep. Sudden convulsions or heart attack are also possible. With the addition of alcohol, the drowsiness effect is intensified.

Other general effects of cocaine use include: extreme changes in blood pressure; increases in hearing and respiration rates; anxiety; nausea and tremors. Researchers have indicated that smoking Crack can also cause lung damage; respiratory problems, including congestion, wheezing and spitting-up of black phlegm, burning of the lips, tongue and throat; weight loss; and generally poor health.

Because of the intense and often unpleasant withdrawal effects, many use alcohol to help negate withdrawal symptoms. In fact, many combinations of depressants and/or stimulants are used which diminish driving performance. In particular, drowsiness is accentuated after the high, especially when depressants such as alcohol are used.

TRANQUILIZERS AND OTHER SEDATIVE HYPNOTICS

Barbiturates to Benzodiazepines

Barbiturates (Drugs Abused More Commonly):

- . Pentobarbital (Nembutal)
- . Secobarbital (Seconal)
- . Amobarbital (amytal)
- . Amobarbital combined with Secobarbital (tuinal)
- . Butalbital (Fiorinal)

Barbiturates (Drugs Abused Less Commonly):

- . Barbital (Veronal)
- . Butabarbital (Butisol)
- . Hexobarbital (Evipal)
- . Phenobarbital (Luminal)
- . Thiopental (Pentothal)

Barbiturate-Like:

- . Methaqualone (Quaalude)
- . Methyprylon (Noludar)

Phenothiazines (major tranquilizers)

- . Chlorpromazine (Thorazine)
- . Thioridazine (Mellaril)
- . Haloperidol (Haldol)
- . Thiothixene (Navane)
- . Loxapine (Loxitane)

Benzodiazepines (the minor tranquilizers)

- . Diazepam (Valium)
- . Flurazepam (Dalmane)
- . Triazolam (Halcion)
- . Alprazolam (Xanax)
- . Oxazepam (Serax)
- . Lorazepam (Ativan)
- . Temazepam (Restoril)

Properties, Barbiturates to Benzodiazepines

Barbiturates are depressants and are widely prescribed where it is necessary to decrease central nervous system activity. In low doses, short or intermediate acting drugs, such as Nembutal, are used in the treatment of anxiety. In higher doses they are employed as sleeping pills to induce sleep. Other medical uses include inducing unconsciousness for surgical operations, i.e. Thiopental (Pentothal).

These widely used drugs, known as "downers", "barbs", etc., have the potential for acute intoxication and dependence addiction.

Phenothiazines, also known as major tranquilizers or antipsychotics, are used to treat mental illnesses. A related family consists of Antidepressants, such as amitriptyline (Elavil). Because of the uninteresting physical effects (some very unpleasant) of major tranquilizers, their recreational use is extremely rare.

Benzodiazepines are anti-anxiety agents. While their effects on driving are less than those in the Barbiturate class, they are widely used and abused. Diazepam (Valium) is the most frequently prescribed anti-anxiety agent in the world. In the United States, 66.5 million tranquilizer prescriptions are written annually. In combination with alcohol, these drugs have the potential for possible acute intoxication.

Effects, Barbiturates to Benzodiazepines

Barbiturates produce general, progressive depression of the central nervous system, characterized by sedation and sleep, sometimes preceded by a period of apparent excitement and disinhibition. In overdose, they cause coma and death by respiratory failure.

Physical and psychological dependence may develop from prolonged or repeated use; the withdrawal syndrome is characteristically different from and more serious than that produced by narcotic analgesics. There is cross-tolerance and cross-dependence among all drugs in this class; they are also mutually addictive.

Low dosages affect driving capabilities only minimally. Higher dosages result in intoxication similar to alcohol intoxication, and are often accompanied by impaired thinking, lack of emotional control, aggressive behavior, followed by drowsiness.

Other deteriorations include:

- . degraded motor control and simple reaction time;
- . decreased visual-motor coordination; and
- . loss of balance.

Methaqualone has its own special side effects. High-dosage levels result in fatigue, dizziness and, in extreme cases, almost total loss of muscle control.

The effects of alcohol are enhanced by barbiturates, and vice versa. This is an especially dangerous combination, because their mutual depressant effects are additive. The dose of alcohol a person might normally take, combined with an added dose of barbiturates that would be a sedative by itself, can lead to coma. Further, it has also been established that the passing of barbiturates from the blood is slowed by alcohol. This would tend to prolong the behavioral effects of the combined use of these drugs.

Phenothiazines do promote drowsiness, lethargy and boredom. Mental patients on prescribed dosage levels can legally drive in accord with their physician's recommendation and approval by the New York State Department of Motor Vehicles.

The combination of major tranquilizers and alcohol greatly enhances the drowsiness effect of both.

From a theoretical perspective, minor tranquilizers used in controlled prescribed dosages, should improve the driving skills of some, by calming them in stressful situations and relieving them from anxiety. At present, however, there are no conclusive studies to support this.

Minor tranquilizers at low-dosage levels do affect driving performance, causing low levels of impairment. Studies have shown that Diazepam (Valium) impairment is associated with greater dose levels, affecting tracking, information processing, and visual search tasks. Because Diazepam is frequently abused and taken in massive dosage levels, this drug is a serious traffic safety problem.

The use of alcohol and minor tranquilizers is widespread. Most minor tranquilizers potentiate the depressant effects of alcohol. Increased drowsiness is the major problem once the initial high diminishes.

Narcotics

Nacotics

- Opium
- Heroin
- Morphine
- Codeine
- Hydromorphone (Dilaudid)
- Oxycodone (Percodan)
- Hydrocodone (Hycodan)
- Oxymorphone (Numorphan)

Narcotic-Like (synthetic)

- Methadone (Dolophine, etc.)
- Propoxyphene HCC (Darvon)
- Pentazocine HCL (Talwin)
- Meperidine (Demerol)

Properties of Narcotics

Narcotics, also known as opioids or opiates, generally refer to opium and other narcotic drugs derived from the oriental poppy (*Papaver somniferum*) - e.g. morphine, codeine, and heroin. Narcotics also refer to certain semi-synthetic chemicals that have a morphine-like action such as Meperidine (Demerol). Methadone (Dolophine), a synthetic opiate-like drug used to block the craving for heroin, is used extensively in chemotherapy programs, primarily in New York City. It is effective for 24-36 hours, at which time another dose is needed for stability.

These drugs are taken by mouth, sniffed, injected subcutaneously or intravenously, and smoked (opium).

Narcotics relieve pain, induce sedation or sleep, and elevate mood to the point of euphoria; major problems and everyday irritations fade. They also suppress coughing and are constipating. A high degree of tolerance and severe physical and psychological dependence usually develop with prolonged or repeated use. The withdrawal syndrome is severe and uncomfortable. Overdosage can cause death by respiratory depression. Most of the symptoms can be ascribed to abnormal functions of the autonomic nervous system.

Effects of Narcotics

Methadone patients who are well stabilized on the drug and follow the prescribed doses can drive without impairment. Studies indicate that the accident rate of methadone patients cannot be differentiated from the performance of non-drug using individuals.

High doses or abuse of short-acting narcotics like heroin or morphine can have marked effects on skills related to driving performance such as reaction time. However, it is not clear whether the depressants directly degrade psychomotor activity, or lead to a decline in interest in all activity. Higher chronic use and use in combination with alcohol are particularly dangerous, especially after the euphoric high, when drowsiness and even coma may result.

Other characteristics of abuse after euphoria include: drowsiness, nodding, drunken behavior, confusion, inattentiveness, irritability, slow pulse, and pinpoint pupils.

Alcohol and narcotics, both depressants, potentiate the drowsiness problem. In fact, all multiple-use combinations of depressants are extremely dangerous in driving situations; they can lead to coma and death.

HALLUCINOGENS

LSD-Type (Indolealkylamines)

- D-lysergic acid diethylamide (LSD). Usually taken orally on sugar cube, blotter paper, cookie, etc. Occasionally injected intravenously. Often used in a group setting. The "trip's" duration is 8-12 hours, with possible recurrence of "trip" even after use.

- . Psilocybin (Mushrooms): Duration 4-6 hours; swallowed.
- . Alpha-acetyl, LSD (ALD): Duration 8-12 hours; swallowed.
- . Diethyltryptamine (DET): Duration 2-3 hours; smoked or injected.

Mescaline Type

- . Mescaline (Peyote buttons): Duration 8-12 hours; swallowed or occasionally injected.
- . Dimethoxy methylamphetamine (DOM or STP): Effects similar to mescaline and amphetamine. Duration 2-4 days; swallowed.
- . Methylene dioxyamphetamine (MDA), The "love drug": In minute doses resembles LSD, in larger doses highly toxic. Taken by mouth in capsules. Little valid information available.

Dissociative Type (Phencyclidines):

- . Phencyclidine (PCP), formerly used as an animal tranquilizer (Sernyl); "street" names are Peace Pill, hog, rhino, angel dust, killer weed.

Properties

LSD, the best known modern hallucinogen or psychedelic, is derived from the fungus ergot. While these drugs rarely produce acute intoxication and have a low potential for addiction, they are extremely dangerous because of their very unpredictable results.

Effects of Hallucinogens

These drugs, which are strong stimulants, produce a toxic delirium characterized by visual illusions and hallucinations, sometimes accompanied by bizarre acts, perceptual distortions, and difficulties in concentration. Changes may range from hilarity to depression or panic states. The duration and intensity of these effects vary a great deal from drug to drug, and individual to individual. Tolerance occurs with some drugs; psychological dependence may occur occasionally, but there are no clear-cut signs of physical dependence.

A "trip" is characterized by hallucinations and visual distortion of sensory perceptions. Additionally, the drug results in exaggerated sense of comprehension: one may "see" smells, "hear" colors. A false sense of achievement, ability and strength occurs. Loss of sense of reality, depersonalization, and/or alteration of body image, tend to intensify existing psychosis and may trigger suicidal tendencies. For some, panic and violence may be present; others experience less anxiety, leading into a deep and transcendental experience.

The physical results include: dilated pupils, incoordination, numbness, tingling, nausea, mild hypertension, and inflamed eyes.

PCP produces distinctive effects, including aggressiveness, decreased sensitivity to pain, a weak and rubbery sensation in legs, impaired coordination, and sometimes dizziness.

Obviously, any driver under the influence of any of these drugs is a severe threat to himself and others. The results can be totally unpredictable and, in the case of LSD, can recur spontaneously (flashback) — a severe highway safety threat in itself.

Alcohol further aggravates the problem with unpredictable results.

OTHER SUBSTANCES/INHALANTS

- . Gasoline, Airplane Glue, Paint Thinner, Dry Cleaner Solution, Nail Polish Remover
- . Nitrous Oxide
- . Amyl Nitrite, Butyl Nitrite

Properties of Other Substances/Inhalants

Properties include methyl-alcohol, aliphatic hydrocarbons, anesthetics, aromatic hydro-carbons.

Effects of Other Substances/Inhalants

Volatile substances prompt recklessness. Other characteristics resulting from high dose abuse include: hazy euphoria, slurred speech, impaired perception, coordination and judgment; initial excitation may be followed by hallucinations, occasional psychotic outbursts, depression and stupor. Daily use for six months duration or longer may cause irreversible brain damage. These substances can also cause kidney and liver damage and even death.

Alcohol intensifies the drowsiness problem when used with inhalants.

ABUSE POTENTIAL BY DRUG CLASS: RISKS AND CONSEQUENCES

(For additional information on drugs and their effect on driving,
refer to the section on Common Drugs and Their Impact on Driving)

	Alcohol	Marijuana	STIMULANTS		SEDATIVE HYPNOTICS			HALLUCINOGENS		Inhalants
			Cocaine	Other*	Tranquilizers	Sedatives	Opioids	PCP	Other**	
Acute intoxication leading to life-threatening overdose	Yes	None documented	Yes	Possible	Possible (esp. if taken with alcohol)	Yes	Yes	Yes	Rare	Yes
Relative potential for dependence/addiction	Moderate	Low to Moderate	High	High	Low	Moderate to high	High	Low to high	Low	Low
Risk of progressive organ damage, possibly irreversible	High	Low	Moderate	Moderate	Low	Low to moderate	Low	High	Low	High
"Flashbacks"	No	Yes	No	No	No	No	No	Yes	Yes	No
"Panic reactions" (acute toxic psychosis)	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
Persistent psychotic reaction	Yes	Possible	Possible	Yes	Possible	Yes	No	Yes	Yes	Possible
Risk of serious social dysfunction or "life-style consequences"	Moderate to high	Low to moderate	Very high	Low to moderate	Low	High	Very high	High	Low	Low to moderate
Organic brain syndrome (severe or long-lasting adverse mental or behavioral consequences)	High	Low	Moderate to high	Moderate to high	Low	Low to moderate	Low to moderate	Very high	High	High

* Amphetamines and related stimulants (e.g., Preludin, Ritalin)

**LSD, mescaline, "mushrooms," DOM, DOB, MDA, MDM, etc.

Ira Mothner and Alan Weitz - How to Get Off Drugs, Rolling Stone Press/Simon and Schuster, New York, 1984.

SUMMARY COMMONLY ABUSED DRUGS AND THEIR IMPACT ON DRIVING

TYPE OF DRUG	MOST COMMON DRUGS	STREET NAMES	EFFECTS ON DRIVING	METHODS OF USE	SYMPTOMS OF USE
<p>ALCOHOL The beverage alcohol (ethanol) is the most widely-used psycho-active drug. As a depressant (sedative/hypnotic), effects range from relaxation to sleep. Alcohol is frequently used with other drugs — synergistic effects boost the results in unpredictable ways. Alcohol is most frequently used with marijuana, barbiturates, and/or benzodiazepines such as Valium.</p>	<p>Wine Beer Distilled Liquors: whiskey derivatives, vodka, gin, rum, brandies, liquers</p>	<p>Booze, Hooch, Juice, Brew</p>	<p><u>Alcohol</u> Effects relative to alcohol amount cause: - Impaired muscle coordination. - Decreased peripheral vision, promotes multiple vision, blurring, dizziness, and night vision impairment. - Reduced inhibitions and greater risk taking. - Complex reaction time is slowed — tracking compromised. - Drowsiness to coma — accentuated by using most other drugs.</p>	<p>Swallowed in liquid form.</p>	<p>Impaired muscle coordination. Involuntary-oscillation of eyes. Talkative with slurred speech. A flushed appearance in some cases. Emotional, aggressive, hostile, or very passive behavior. Alcohol odor can be present.</p>
<p>MARIJUANA, HASHISH Made from the crushed leaves, twigs, seeds, and sometimes flower tops, of the hemp plant Cannabis. This drug is neither a stimulant nor depressant, but has some features of both. The potential for addiction is low to moderate.</p>	<p>Active Ingredient: (THC) or Tetrahydrocannabinol</p>	<p>Pot, Grass, Reefer, Weed, Columbian, Hash, Hash Oil, Sinsemilla, Joint</p>	<p><u>Marijuana Only</u> Low dosage marijuana use minimally affects motor coordination. Higher dosages reduce the ability to react to unusual or emergency situations. Additionally: - impaired memory, perception, timing, and - drowsiness after the high. <u>Alcohol and Marijuana</u> - More hazardous than using either substance alone because synergistic results are unpredictable.</p>	<p>Most often smoked; can also be swallowed in solid form.</p>	<p>Sweet, burnt odor. Neglect of appearance. Loss of interest, motivation. Possible weight loss.</p>
<p>STIMULANTS Stimulants are drugs that make people feel more alert and energetic by stimulating or exciting the nervous system. They are also used as diet pills. The drugs in the amphetamine class have a high potential for abuse, acute intoxication and dependency. "Crack" the street name for a more purified form of Cocaine, can lead to acute intoxication, high dependence and possible brain damage.</p>	<p>Amphetamines Dextroamphetamine (Dexedrine) Methamphetamine (Desoxyn, etc) Amphetamine (Benzedrine) Amphetamine-like Phenmetrazine (Preludin) Methylphenidate (Ritalin) Related Stimulants Benzphetamine (Didrex) Chlorphentermine (Pre-Sate) Phendimetrazine (Plegine)</p>	<p>Speed, Uppers, Pep Pills, Bennies, Dexies, Crystal, Black Beauties</p>	<p><u>Stimulants Only</u> - While these drugs will initially boost alertness, they will also result in edginess and less coordination. Higher dosage levels promote the delusion of overconfidence, followed by drowsiness and blurred vision, after the high. Crack in particular promotes the illusion of power and confidence while diminishing tracking abilities in emergency situations. <u>Alcohol and Stimulants</u> - When the high passes, the tendency for drowsiness is intensified. - The stimulants give an alcohol intoxicated driver a false sense of alertness and competence.</p>	<p>Swallowed in pill form, or injected into veins.</p>	<p>Excess activity, irritability: nervousness. Mood swings, needle marks.</p>
	<p>Cocaine and Crack</p>	<p>Coke, Snow, Toot, White Lady, Rock, Crack</p>		<p>Most often smoked or inhaled; also injected or swallowed in powder, pill or rock form.</p>	<p>Restlessness, anxiety, intense, short-term high followed by depression.</p>

SUMMARY, COMMONLY ABUSED DRUGS AND THEIR IMPACT ON DRIVING (continued)

TYPE OF DRUG	MOST COMMON DRUGS	STREET NAMES	EFFECTS ON DRIVING	METHODS OF USE	SYMPTOMS OF USE
<p>TRANQUILIZERS AND OTHER SEDATIVE HYPNOTICS (DEPRESSANTS) This grouping, also known as depressants, lowers the energy level of the nervous system, reducing sensitivity to outside stimulation. They are used medically, i.e. counter pain, promote relaxation, and sleep. These drugs are widely prescribed and their abuse is extensive.</p> <p>Also included are Narcotics which contain, or resemble, opium.</p> <p>Barbiturates and Narcotics have the potential for acute intoxication and dependence addiction.</p> <p>While phenothiazines, used to treat mental illness, do cause drowsiness, their abuse potential and probable impact on highway safety is minimal.</p>	<p>Barbiturates and Like Drugs Pentobarbital (Nembutal) Secobarbital (Seconal) Methaqualone (Quaalude) Methyprylon (Noludar)</p> <p>Benzodiazepines Diazepam (Valium) Flurazepam (Dalmane)</p>	<p>Barbs, Downers, Yellow Jackets, Red Devils, Blue Devils-</p>	<p><u>Sedative Hypnotics Only</u> - All of these drugs depress the central nervous system, thereby causing drowsiness. Higher doses have the same effects on driving as high alcohol concentrations. Additionally, driving skills are usually most impaired in the first hour after use; followed by drowsiness and even coma.</p>	<p>Swallowed in pill or liquid form, or injected into veins.</p>	<p>Drowsiness, confusion, impaired judgement, slurred speech, needle marks, constricted pupils.</p>
	<p>Narcotics (Opioids, Opiates) Morphine, Heroin Opium Codeine Hydromorphone (Dilaudid) Oxycodone (Percodan) Meperidine (Demerol)</p> <p>Narcotic-Like (Synthetic) Methadone (Dolophine, etc.) Propoxyphene (Darvon)</p>	<p>Dreamer, Junk, Snack, Horse, School Boy</p>	<p><u>Alcohol and Sedative Hypnotics</u> - This combination accentuates the drowsiness problem. - In the combination of Barbiturates and/or Narcotics with alcohol, intense drowsiness may occur after the high subsides. This potent combination, even in relatively low dosage levels, can lead to death from overdose.</p>	<p>Swallowed as pill or liquid, injected, or smoked.</p>	<p>Drowsiness, nodding, lethargy, euphoria, respiratory depression, constricted pupils, needle marks.</p>
<p>HALLUCINOGENS (PSYCHEDELICS) LSD is the best known modern hallucinogen derived from the fungus ergot. While these stimulant like drugs rarely produce acute intoxication, and have a low potential for addiction, they are extremely dangerous because of the very unpredictable hallucinating results. Even low dosages affect driving skills.</p>	<p>LSD-Type Indolealkylamines LSD Psilocybin Alpha-acetyl LSD (ALD)</p>	<p>Acid, Cubes, Purple Haze, Magic Mushrooms, Orange Sunshine, Speedy Trip</p>	<p><u>Hallucinogens Only</u> - All of these drugs cause very unpredictable and dangerous results, to include: hallucinations, blurred vision, incoordination, aggression, and confusion. Additionally, hallucinations can recur "flashback" at any time without warning.</p>	<p>Usually swallowed.</p>	<p>Dilated pupils, illusions, hallucinations, mood swings, lost memory.</p>
	<p>Mescaline-Type Mescaline DOB</p>	<p>Mesc, Cactus</p>	<p><u>Alcohol and Hallucinogens</u> - Because of the unpredictable nature of these drugs, the addition of Alcohol makes this combination particularly dangerous - especially LSD/Alcohol.</p>	<p>Most often smoked; can also be inhaled (snorted); injected or swallowed.</p>	<p>Slurred speech, blurred vision, incoordination, confusion, agitation, aggression, rubbery feeling in legs, decreased sensitivity to pain.</p>
	<p>Dissociative-Type Phencyclidine Hydrochloride (PCP)</p>	<p>Angel Dust, Killer Weed, Supergrass, Hog, Peace Pill</p>			
<p>OTHER SUBSTANCES/INHALANTS Properties include methyl alcohol, aliphatic hydrocarbons, anesthetics, aromatic hydrocarbons. Long-term chronic abuse can cause kidney and liver damage, blindness, and even death.</p>	<p>Gasoline, Airplane Glue, Paint Thinner, Dry Cleaner Solution</p>		<p><u>Inhalants Only</u> - All of these substances cause: poor motor coordination, impaired vision, including delayed blindness, and impaired thought.</p>	<p>Inhaled or sniffed, often with use of paper bag or rag.</p>	<p>Poor motor coordination; impaired vision, memory and thought; plus abusive and violent behavior.</p>
	<p>Nitrous Oxide</p>		<p><u>Alcohol and Inhalants</u> - Alcohol intensifies the above affects in unpredictable ways. The Drowsiness factor is accentuated.</p>	<p>Inhaled or sniffed by mask or cone.</p>	<p>Lightheaded.</p>
	<p>Amyl Nitrite, Butyl Nitrite</p>	<p>Poppers, Locker Room, Rush, Snappers</p>		<p>Inhaled or sniffed from gauze or ampules.</p>	<p>Slowed thought, headache.</p>

Common Medical Drugs and Possible Side Effects Influencing Driving

Many prescription drugs taken at prescribed levels have the potential to be driving hazards because of unanticipated side effects in people who are sensitive or allergic to them. When abused or taken in combination with other substances, side effects are more unpredictable. The common potential side effect could be drowsiness. Individuals on medications for pain, anxiety, blood pressure, heart disease, arthritis, and/or colds should be particularly aware of possible side effects. Individuals should check warning labels on the prescription, or consult with their pharmacist and/or physician on possible side effects which could affect driving. Alcohol consumption while taking medications promoting drowsiness adds to the risk.

PRESCRIPTION DRUGS

The following commonly prescribed drugs are potential hazards for some drivers:

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Accutane	Acne	Decrease in night vision, dizziness, weakness.
Acetaminophen (w/Codeine)	Pain	Drowsiness, lightheadedness, dizziness.
Adapin	Anxiety	Blurred vision, drowsiness.
Adipex-P	Diet	Dizziness.
Aldactazide	Blood pressure	Drowsiness, tiredness, mental confusion.
Aldactone	Blood pressure	Drowsiness.
Aldomet	Blood pressure	Dizziness, lightheadedness, fainting.
Aldoril	Blood pressure	Dizziness.
Ambenyl Cough Syrup	Coughs, allergies	Blurring of vision, drowsiness.
Amitriptyline HCT	Anxiety	Disturbed concentration, disorientation, delusions, hallucinations.
Antivert	Antihistamine	Drowsiness, and on rare occasions, blurred vision.
Apresoline	Blood pressure	Dizziness.
Artane	Tremors	Blurring of vision, dizziness.
Asendin	Anxiety	Drowsiness, confusion.
Atarax	Anxiety	Drowsiness.
Ativan	Anxiety	Sedation, dizziness, disorientation.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Brethine	Aid breathing	Drowsiness.
Butazolidin	Pain/inflammation	Blurred vision.
Butisol Sodium	Barbiturate sedative	Drowsiness.
Calan	Heart disorders	Dizziness, fatigue.
Carafate	Ulcers	Dizziness.
Cardizem	Heart disorders	Dizziness, hallucinations.
Catapres	Blood pressure	Drowsiness, sedation, dizziness.
Centrax	Anxiety	Fatigue, dizziness, weakness, drowsiness, lightheadedness, lack of coordination.
Chlordiazepoxide	Anxiety, tension, alcohol withdrawal	Drowsiness, loss of balance, confusion, fainting.
Combid Spansules	Ulcers, anxiety	Drowsiness, dizziness, convulsions.
Compazine	Psychotic anxiety	Drowsiness, dizziness, blurred vision.
Corgard	Blood pressure	Dizziness, fatigue, blurred vision.
Dalmane	Sleeping	Dizziness, drowsiness, lightheadedness, staggering, loss of balance, disorientation.
Darvocet-N	Pain	Dizziness, drowsiness, minor visual disturbances.
Darvon	Pain	Dizziness, sedation, minor visual disturbances.
Darvon Compound	Pain	Dizziness, tiredness, minor visual disturbances.
Decadron	Swelling	Convulsions, dizziness.
Deconamine	Congestion	Drowsiness, disturbed coordination, fatigue, confusion.
Deltasone	Antiinflammatory	Dizziness.
Demerol	Pain	Lightheadedness, dizziness, hallucinations, disorientation, visual disturbances.
Desyrel	Treatment of depression	Drowsiness, lightheadedness, dizziness, fatigue.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Dexedrine	Narcolepsy and diet	Dizziness.
Diamox	Multi applications	Drowsiness.
Diazepam	Anxiety and muscular disorders	Drowsiness, fatigue, loss of balance, dizziness, hallucinations.
Didrex	Diet	Dizziness.
Digoxin	Heart	Visual disturbances, blurred vision.
Dilantin Kapseals	Convulsions and heart	Loss of balance, confusion, dizziness.
Dilaudid	Pain	Sedation, drowsiness.
Dimetane Cough Syrup-DC	Cough	Drowsiness, blurred vision, double vision, dizziness.
Dipyridamole	Angina	Weakness, fainting.
Ditropan	Bladder	Blurred vision, drowsiness.
Dolobid	Arthritis	Dizziness.
Donnagel-PG	Diarrhea	Blurring of vision.
Donnatal	Ulcers	Blurred vision.
Dyazide	Multi applications, blood pressure	Dizziness, increased sensitivity to sunlight.
E.E.S.	Infections	Fainting.
Elavil	Mental depression	Disturbed concentration, disorientation, delusions, hallucinations, incoordination, loss of balance.
Empirin w/Codeine	Pain	Lightheadedness, dizziness, sedation.
Enduron	Blood pressure	Drowsiness, dizziness, loss of balance.
Equagesic	Anxiety	Drowsiness, loss of balance, dizziness, inability of eyes to adapt to changing light, fainting.
Ery-Tab	Infections	Fainting.
Erythrocin Stearate	Infections	Fainting.
Fastin	Diet	Dizziness.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Feldene	Pain and arthritis swelling	Dizziness.
Fioricet	Pain and mild sedation	Drowsiness, dizziness.
Fiorinal	Pain and mild sedation	Drowsiness, dizziness.
Fiorinal w/Codeine	Pain	Dizziness, drowsiness.
Flagyl	Infections	Dizziness, incoordination, loss of balance.
Flexeril	Muscle spasms	Drowsiness, dizziness, blurred vision, disorientation.
Furosemide	Multi applications - heart, liver, kidney	Drowsiness, restlessness.
Gantrisin	Infections	Dizziness.
Glucotrol	Diabetes	Dizziness, drowsiness.
Halcion	Anxiety	Drowsiness, dizziness, visual disturbances.
Haldol	Emotional disorders	Drowsiness, confusion.
Hycodan	Cough	Sedation.
Hycomine Syrup	Cough	Dizziness.
Hydralazine Hydrochloride	Blood pressure	Dizziness.
Hydrochlorothiazide	Blood pressure	Drowsiness, dizziness, loss or balance.
Hydrodiuril	Multi applications - heart, liver, kidney	Dizziness, loss of balance, transient blurred vision.
Hydroxyzine Hydrochloride	Multi applications anxiety	Drowsiness.
Hygroton	Pass fluids	Dizziness, blurred vision.
Ibuprofen	Pain and arthritis swelling	Dizziness, visual disturbances.
Ilosone	Infections	Fainting.
Ilotycin	Infections	Fainting.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Imipramine HCL	Depression	Fainting, confusion, hallucinations, disorientation, incoordination, blurred vision.
Imodium	Diarrhea	Drowsiness, tiredness.
Inderal	Multi applications, especially heart	Visual disturbances, hallucinations, disorientation.
Inedral LA	Heart	Lightheadedness.
Inderide	Blood pressure	Visual disturbances, hallucinations, increased sensitivity to sunlight.
Indocin	Pain and swelling in arthritis	Dizziness.
Ionamin	Diet	Dizziness, shaking.
Isordil	Pain, heart	Dizziness.
Keflex	Infections	Dizziness, fatigue.
Lanoxin	Heart	Drowsiness, confusion, visual disturbances.
Librax	Gastrointestinal	Drowsiness, loss of balance, confusion, fainting.
Librium	Emotional disorders, anxiety	Drowsiness, loss of balance, confusion, fainting.
Limbitrol	Depression	Drowsiness, blurred vision, dizziness.
Lithium Carbonate	Manic-depression	Drowsiness, blurred vision.
Lomotil	Diarrhea	Dizziness, drowsiness.
Lo/Ovral	Contraceptive	Dizziness.
Lopressor	Blood pressure	Tiredness, dizziness, hallucinations.
Lozol	Blood pressure	Dizziness, fatigue, drowsiness.
Ludiomil	Depression	Hallucinations, disorientation, delusions, drowsiness, dizziness.
Macrochantin	Urinary infections	Dizziness.
Maxzide	Multi applications including blood pressure	Fatigue, dizziness.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Meclizine	Antihistamine, nausea	Drowsiness, blurred vision.
Meclomen	Arthritis	Dizziness, blurred vision.
Medrol	Anti-swelling	Dizziness.
Mellaril	Emotional disorders	Drowsiness, uncoordinated movements, confusion, blurred vision.
Meprobamate	Anxiety	Drowsiness, loss of balance, dizziness.
Metronidazole	Infections	Dizziness, incoordination, loss of balance.
Midrin	Tension and headache	Dizziness.
Minipress	Blood pressure	Drowsiness, fainting, loss of balance, blurred vision.
Minocin	Infection	Dizziness, fainting.
Moduretic	Blood pressure	Fatigue, dizziness.
Motrin	Pain and inflammation, arthritis	Dizziness
Naldecon	Colds and respiratory infections	Drowsiness, dizziness.
Nalfon	Pain and inflammation for arthritis	Dizziness.
Navane	Mental disorders	Fainting, drowsiness.
Nitro-Bid	Angina	Dizziness.
Nitro-Dur II	Angina	Fainting, dizziness.
Nitroglycerin	Angina and heart	Blurred vision, loss of balance.
Nitrostat	Angina	Blurred vision.
Nizoral	Fungal infections	Dizziness.
Norgesic	Muscle pain	Dizziness, drowsiness, hallucinations, lightheadedness, fainting.
Norinyl	Contraceptive	Dizziness.
Novafed-A	Antihistamine and decongestant	Dizziness.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Novahistine DH	Cough and nasal congestion	Dizziness.
Ogen	Estrogen deficiency	Dizziness.
Ornade Spansules	Cold, allergies	Dizziness, convulsions, visual disturbances.
Ortho-Novum	Contraceptive	Dizziness.
Parafon Forte	Pain, muscle and bones	Drowsiness, dizziness, lightheadedness.
Parlodel	High prolactin levels	Dizziness, fatigue.
Percocet-5	Pain	Lightheadedness, dizziness, sedation.
Percodan	Pain	Lightheadedness, dizziness, sedation.
Periactin	Antihistamine, allergies	Drowsiness, dizziness, jitteriness, faintness.
Phenaphen w/Codeine	Pain	Drowsiness, lightheadedness, dizziness.
Phenergan Syrup Plain	Nasal, chest congestion	Dizziness.
Phenergan VC Expectorant	Nasal, chest congestion	Dizziness.
Phenergan VC w/Codeine	Nasal, chest congestion	Dizziness.
Phenobarbital	Sedative, sleep, anxiety	Drowsiness, dizziness, loss of balance, confusion.
Polaramine	Multi purpose antihistamines	Drowsiness, dizziness, double vision.
Prednisone	antiinflammatory	Dizziness.
Premarin	Estrogen deficiency	Dizziness.
Procardia	Angina	Dizziness, lightheadedness, blurred vision.
Protostat	Infections	Dizziness.
Proventil	Lung Disease	Dizziness.
Provera	Menstruation	Dizziness, fatigue.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Quinaglute	Heart	Blurred vision, night blindness, reduced visual field.
Quinamm	Muscle cramps	Visual problems.
Reglan	Gastrointestinal	Drowsiness, dizziness.
Restoril	Sedative, sleep	Drowsiness, dizziness, confusion, lack of concentration.
Ritalin	Multi applications	Dizziness.
Robaxin	Muscle-skeletal	Dizziness, drowsiness, visual disturbances, blurred vision.
Robitussin A-C	Cough	Drowsiness.
Robitussin-DAC	Cough, nasal congestion	Dizziness.
Rondec-DM	Cold	Dizziness, double vision, hallucinations.
Ru-Tuss	Upper respiratory	Drowsiness, faintness, dizziness, visual disturbances.
Rufen	Pain and inflammation of arthritis	Dizziness.
Rynatan	Nasal congestion	Drowsiness, sedation.
Seldane	Allergy	Drowsiness, fatigue, dizziness.
Septra	Urinary tract	Convulsions, hallucinations, dizziness.
Ser-Ap-Es	Blood pressure	Drowsiness.
Serax	Multi applications, anxiety	Drowsiness, dizziness, loss of balance, visual disturbances.
Sinemet	Parkinson's disease	Dizziness.
Sinequan	Anxiety	Hallucinations, dizziness.
Singlet	Congestion, pain, fever	Drowsiness, dizziness, double vision.
Slo-Phyllin	Asthma	Convulsions.
Soma	Muscular-skeletal	Dizziness, lightheadedness.
Soma Compound	Muscle relaxant	Drowsiness, lightheadedness, dizziness.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Soma Compound w/Codeine	Muscle relaxant	Dizziness, vertigo.
Stelazine	Mental disorders	Drowsiness, dizziness.
Synalgos-DC	Pain, sedative	Dizziness, drowsiness.
Tagamet	Ulcers	Dizziness.
Talacen	Pain	Dizziness, lightheadedness, hallucinations, sedation, disorientation, visual blurring.
Talwin Nx	Pain	Dizziness, lightheadedness, sedation.
Tavist	Allergic inflammation	Dizziness, convulsions, double vision.
Tavist-D	Allergies	Dizziness, fatigue, confusion, blurred vision.
Tegretol	Epilepsy	Dizziness, drowsiness, unsteadiness, hallucinations, double vision.
Tenoretic	Blood pressure	Lightheadedness, dizziness, disorientation.
Tenormin	Blood pressure	Lightheadedness, dizziness, loss of balance, fatigue, drowsiness.
Tenuate Dospan	Weight reduction	Dizziness.
Terpin Hydrate w/Codeine	Coughs, allergies	Blurred vision, dizziness, drowsiness, confusion.
Tessalon	Cough	Sedation, mild dizziness.
Tigan	Nausea and vomiting	Dizziness, drowsiness.
Tolectin	Pain and inflammation of arthritis	Fainting, dizziness.
Tolinase	Diabetes	Dizziness.
Transderm-Nitro	Angina	Dizziness.
Trental	Heart	Dizziness, blurred vision.
Triavil	Anxiety, depression	Fatigue, dizziness.
Trimethoprim w/ Sulfa-Methoxazole	Urinary tract infections	Dizziness.
Trinalin Repetabs	Respiratory	Dizziness, confusion, blurred vision, convulsions.

<u>Drug</u>	<u>Common Uses</u>	<u>Possible Side Effects</u>
Triphasil 28	Contraceptive	Dizziness.
Tussend	Cough	Drowsiness, dizziness, hallucinations, convulsions.
Tussi-Organidin	Cough	Drowsiness, dizziness, visual disturbances.
Tuss-Ornade	Cough, upper respiratory	Drowsiness, loss of coordination.
Tylenol w/Codeine	Cough, flu, pain	Drowsiness, dizziness.
Tylox	Pain	Lightheadedness, dizziness, sedation.
Urised	Urinary tract	Dizziness or blurring of vision.
Valium	Multi applications, anxiety	Drowsiness, fatigue, loss of balance, confusion, double vision, fainting, hallucinations.
Vasotec	Blood pressure	Dizziness.
Velosef	Infections	Dizziness.
Ventolin	Respiratory	Dizziness.
Vicodin	Pain	Sedation, drowsiness, dizziness.
Visken	Blood pressure	Dizziness, fatigue.
Wygesic	Pain	Dizziness, sedation, lightheadedness.
Wymox	Infections	Fainting.
Xanax	Anxiety, depression	Drowsiness, lightheadedness, confusion, dizziness.
Xylocaine	Local anesthesia	Confusion, dizziness, unconsciousness.
Zaroxolyn	Blood pressure	Fainting, dizziness, drowsiness, fatigue.
Zovirax	Genital herpes	Dizziness, fatigue.

OVER-THE-COUNTER (OTC)

The major ingredients in many OTC drugs, which could impact on driving, are antihistamines.

The major use of antihistamines is the treatment of nasal congestion and allergies. The stronger dosage levels are found in some prescription drugs previously described. While the dosage levels found in OTC products are less, antihistamines can be a danger because they can cause drowsiness.

Antihistamine based drugs include: Benadryl, Teldrin, Dimetane, Tripelemine.

OTC cough suppressants contain, among other things, alcohol and chloroform. The major potential problem is drowsiness.

OTC cold remedies can alter mood and promote drowsiness.

Drivers using OTC products for allergies and/or colds should avoid alcohol.

Other Terms

Potentiation or Synergism: Adding one and one and coming up with more than just two; the combined effect of drugs that interact this way is more than the sum of their individual effects.

Antagonism: The opposite of potentiation, this interaction results in less of an effect from a combination of two drugs than either would produce individually.

Cross-Tolerance: This involves the simultaneous use of two drugs from the same class (narcotics, sedative-hypnotics, etc.). While they would have similar effects on the central nervous system, the resulting impact would be transferred from one substance to the other. For example, a heavy drinker may develop an unrecognized tolerance for sedatives, and would be obliged to take a higher than normal dosage to induce sleep.

Cross-Dependence: Similar to cross-tolerance, this refers to the ability of one drug to suppress the withdrawal symptoms of another. Methadone may suppress the abstinence syndrome for heroin users, and tranquilizers will do it for alcoholics.

Drug Abuse: The use of a drug for other than medical purposes which results in the impaired physical, mental, emotional, or social well-being.

Drug Addiction: Originally associated with narcotics wherein the user becomes dependent. Many drugs can result in drug dependency. In particular, "Crack" and cocaine use can lead to physical dependency.

Flashback: A recurrence of symptoms associated with LSD or other hallucinogens, sometimes after the actual drug experience.

High: An altered state of consciousness marked by euphoria, feelings of lightness, self-transcendence and energy.

Overdose: Any amount of a substance which produces an acute and dangerous reaction, such as severely low respiration, stupor, or coma.

Poly-drug Use: The consumption of more than one drug at the same time.

Potency: The relative strength of similar drugs.

Psychoactive Drugs: Drugs including alcohol that affect the mind, especially mood, thought or perception.

Psychological Dependence: A state in which the drug user becomes so pre-occupied with taking a drug that it becomes hard to function without it.

Rush: A sudden dramatic change in consciousness.

Subcutaneous: Under the skin, such as the injection of a drug.

Tolerance: A state associated with certain drugs wherein the user must take greater amounts to achieve a predictable "high."

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