

[The Dope on Dope]

*A Unique Approach to
Understanding Substances
of Abuse and Their Related
Behaviors*

Alcohol: Description

- **Alcohol: ethanol.** Fermented honey, called **Mead** was probably the first original alcoholic beverage; dating to approximately 8000 B.C. Records of the first official brewery date to 3700 B.C. in Egypt.
- The recipe is fairly simple: Unseen microorganisms called **yeast** settle on crushed fruit and multiply and begin to digest the sugars in the fruit through a chemical process called **fermentation**. The yeast breaks down the carbon, hydrogen and oxygen atoms it finds in the sugar for food, and in the process produces molecules of **ethyl alcohol** and carbon dioxide as waste. Like other waste products it is a poison, a toxin. When the concentration reaches about 15%, it becomes toxic to the yeast and fermentation stops.
- **Distillation**, on the other hand, allows a higher alcohol concentration thorough the heating of wine or mash (which has a lower boiling point than water) and capturing the vapors and letting it cool to a liquid again, thus this product has a higher concentration of alcohol than water. “**Stills**” were the devices used to allow this process to work.
- American beer generally has an alcohol content of between 3.5-5%.
- US wine generally has an alcohol content of between 8-17%.
- Fortified wine (Sherry, Port) has an alcohol content to about 20%.
- Distilled spirits range from 20-95% alcohol.
- **Proof** is the alcohol content times 2.

Alcohol: Effects

- Alcohol is a Central Nervous System (CNS) depressant drug. Alcohol depresses an area of the brain (cerebral cortex), which in turn releases its inhibitory control over other subcortical systems there. The classic impairment in judgment and thinking involved in drinking stems from a loosening of social inhibitions that allow us to be relatively civil and well behaved. Too much alcohol, acute alcohol poisoning, can also inhibit respiratory centers of the brain, which can lead to death by asphyxiation, usually at a BAC of 0.50
- Alcohol is a relatively weak psychoactive agent. To achieve a significant degree of intoxication the dosage would have to be high for the desired effect to be noticeable. Contrary to other excuses, the psychoactive effect is why most drinkers consume alcohol.
- The users **expectations** play a role in the interpretation of the effect of alcohol. These expectations would serve not only to influence how one would interpret the effects of alcohol but also play a role in shaping the individual's drinking behavior (Brown, et al). Positive expectations could lead to increased alcohol consumption by teenagers thus leading to dysfunctional life-long consumption patterns.
- After 1 or 2 drinks the second effect of alcohol takes shape. This is called the **disinhibition effect**. As stated earlier, when alcohol interferes with the normal functioning of the inhibitory neurons of the cortex in the brain, a section of the brain that controls voluntary behavior, one tends to forget social inhibitions. This may lead to behaviors that, under normal conditions, he/she would never carry out. This seems to help explain the relationship between alcohol use and aggressive behavior. It has been reported that 40-50% of those arrested for homicide consumed alcohol before the murder (Parker, 1993).

[Alcohol: Effects]

- **Intoxication** occurs when a 160 lb. man consumes 4 drinks in 1 hour and a BAL of 0.10 is reached.
- Reaction time becomes impaired and he may begin to have problems with muscle coordination. At this level and slightly higher (0.10-0.14) a person is 48 times more likely than a non-drinker to be in a fatal alcohol-related auto accident.
- At 0.15 the problems with coordination increase as do the reaction time. He also is between 25 and 380 times more likely than a nondrinker to be involved in a fatal auto accident.
- At 0.25 one may begin to stagger around and have difficulty making sense out of sensory data.
- At 0.30 one may be stuporous and although conscious may be unlikely to remember what happened at this state of intoxication.
- At point 0.35 the stage of surgical anesthesia is achieved. Higher levels are analogous to those effects seen with anesthetic ether. When one loses consciousness from drinking, she/he is dangerously close to overdosing on alcohol. 1% of drinkers who achieve a BAL of 0.35 will die without medical treatment.
- Alcohol is thought to interfere with the nerves that control respiration, thus often leading to asphyxiation at BAL's of 0.40-0.50.

[Alcohol: Problems]

- It has been estimated that 90% of adults in the US have consumed alcohol at some point in their lives. Also reported is that the majority of those who consume alcohol do so less than once per week, so a minority of those who use alcohol consume a disproportionate amount of this beverage. 10% of those who drink consume 50% of the alcohol used in this country (Kaplan, 1994). This is the group that alcohol use will usually interfere with their physical health and social well being.
- Alcohol-related motor vehicle accidents are the leading cause of death for individuals aged 15-24 in the US. Inexperienced at driving and inexperienced at drinking, occurring together can be a lethal combination. Other concerns are that it has been estimated that 60% of all boating fatalities are alcohol-related and 70% of motorcycle fatalities are thought to be drinking prior to the accident. Alcohol use is often a factor in fatal injuries due to falling, as high as 41%. Alcohol is a factor in 42% of all deaths associated with fires and leads to an estimated 30,000 deaths in alcohol-related accidental injuries.
- Studies in 1990 suggest that over 13% of the nation's population either abuse alcohol or become dependent on it at some point in their lives. Those dependent on it tend to men, at a ratio of 2:1. The difference between those who **abuse** alcohol and those who are **dependent** on it depends on the criteria met according to a diagnosis.

Alcohol: Abuse Versus Dependency

Abuse Or Dependency Diagnostic Criteria according to the DSM-IV-TR:

Abuse: 1 or more of the following within a 12-month period:

- 1). Failure to fulfill major role obligations (ever quit job).
- 2). Recurrent use in situations that are hazardous (Drive/Wk).
- 3). Recurrent legal problems (DWI, Public Drunk, shoplift, etc).
- 4). Continued use despite knowledge of problems.

Dependency: 3 or more of the following occurring at the same time in the same 12 month period:

- 1). Tolerance.
- 2). Withdrawal.
- 3). Substance taken in larger amounts or over longer period of time than was intended.
- 4). Desire or efforts to cut down or control use.
- 5). Great deal of time getting, using or recovering from its effects.
- 6). Important activities given up or reduced due to use.
- 7). Use despite knowledge of a problem.

It is important to remember that this occurs in a 12-month period and it is a “**maladaptive pattern of substance use which leads to clinically significant impairment or distress**” (DSM-IV).

Alcohol: [Dependency]

- Another dominant characteristic of an alcohol dependent individual is the preoccupation with the act of drinking and the incorporation of drinking into their everyday lives (Levinthal). Drinking after work, having a drink at lunch, drinking to relieve tension and stress, and drinking during social occasions, all may become routine and a part of this person's daily practice. This accommodation may spell trouble for this individual due to meeting criteria for dependency. The amount a person drinks or the type of beverage is not included in the DSM criteria, it is a maladaptive pattern of substance use.
- A frequent problem with the consumption of alcohol, a CNS depressant, is depression. It is estimated that 1/3 to 1/5 of all alcohol dependent individuals experience depressive symptoms sometime in their lives. However, only 5% show depression prior to onset of the alcohol dependent condition. This leads us to consider the depression to be alcohol-induced, thus when the alcoholic abstains, the depressive symptoms subside.
- There can be no doubt alcohol dependency can contribute to vocational, social and family problems. These areas of an individual's life intertwine and troubles in one area can often lead to trouble in another area. Job loss can affect marital harmony, as quickly as discord in a marriage can affect job performance. Social problems (irritability, aggression, being argumentative) can lead to lack of support, which can lead to isolation, often preempting drinking problems.
- A host of physical problems are associated with chronic alcohol consumption. While not everyone who drinks exhibits physical problems, the risks are greatly increased.

Alcohol: [Dependency]

- **Alcohol withdrawal syndrome**, often evidence of dependency, includes the following symptoms: insomnia, vivid dreaming, a severe hangover, sweating, mild agitation, anxiety, nausea, vomiting, and increased heart rate and blood pressure. Usually happening within 24-36 hours after the last drink, it can last up to 48 hours.
- **Delirium Tremens (DT's)** is a much more serious condition. Symptoms include extreme disorientation and confusion, profuse sweating, fever, disturbing nightmares, and frequently occurring frightening hallucinations. These symptoms usually subside 3-4 days after last drink. The possibility of life-threatening events such as heart failure, dehydration or suicide complicates the alcohol withdrawal period. Medical supervision is required to reduce the risk of death or seizure activity.
- Other problems associated with chronic alcohol consumption include **liver problems, cardiovascular problems, alcoholic dementia, and Fetal Alcohol Syndrome.**

[Alcohol: Treatment]

- According to Lewis, et al, there are 4 levels of treatment to choose from, they are **Acute Hospital Care**, **Nonhospital Residential Care**, **Partial Hospital Care**, and **Outpatient Care**. The criteria for each level of placement are attached (see attached).
- In the 1940's E.M. Jellinek proposed that alcohol dependence progressed through a natural sequence of stages, much as a physical illness develops. Due to his work, in 1957 the AMA defined alcoholism as a disease. With this information, it was found abstinence is the only answer to recovery. The treatment process is important, just as with any other disorder or disease. The choices for treatment are somewhat limited, but include biological approaches and centers that utilize various therapeutic approaches.

Alcohol: Biological Treatments

- The use of certain drugs can have an effect on the goal of abstinence. They can be used in treatment centers or as an outpatient or aftercare adjunct treatment approach.
- **Disulfiram** (antabuse) is one such drug. An antagonist, it creates an adverse reaction in alcoholics when alcohol is consumed/absorbed. It inhibits alcohol dehydrogenase, allowing acetaldehyde to build up in the bloodstream. With the ingestion of alcohol, it creates symptoms that include flushing of the face, rapid heartbeat and palpitations, nausea and vomiting. Any consumption/wearing of alcohol, including mouthwash, cough preparations, cologne, or shampoo can trigger these effects.
- Another drug under study is **naltrexone**. This drug is said to reduce cravings in alcoholics. Originally used with heroin users, it is an antagonist for opioid dependency. In overdose cases it was administered to inhibit dopamine receptors in the brain, thus moving the individual into withdrawal. The theory is that naltrexone will reduce craving by inhibiting dopamine-releasing neurons. This approach when used with therapy and other rehabilitative services has shown promise. Other drugs are being tested and data is being released.

Alcohol: Treatment Programs

- Treatment centers for alcohol dependency abound. Most approaches include **detoxification**, usually using some form of drug to reduce risk for severe withdrawal symptoms. After detox, the individual will usually move into an outpatient or residential setting. Outpatient treatment includes state-managed mental health programs, private practices and faith-based oriented programs. Residential programs can include state-managed inpatient treatment programs, non-profit and private for-profit treatment programs. They can be included on hospital grounds or in centers located in the community.
- The goal for either approach with alcohol dependency is the same, abstinence. Using the outpatient treatment approach as the least-intrusive method means the individual's job is intact, the supportive relationships in the community are available and the responsibilities present inhibit removal from such. This approach is most often attempted first.
- When placement criteria necessitate inpatient treatment centers, the approach utilizes removing one from the community in order to reduce the risk presented there. Medical concerns are also considered in this placement (liver problems, STD's, detoxification needs).

Alcohol: Treatment Programs

- Treatment approaches include substance abuse education (biopsychosocial), addressing defense mechanisms, restoring habilitative skills (social and inter/intra personal), interaction with others with similar disorders. Cognitive, behavioral, and interpersonal interventions are utilized and demonstrated at these centers.
- **AA/NA**, though thought of as treatment, is not treatment per say. It is an important adjunct to treatment and an excellent aftercare recommendation for community structure replication. Based on the 12 Steps it allows the individual to connect with their community and gain knowledge on how to maintain recovery and to be exposed positive role models and mentors (sponsors). It is not group therapy, but instead a “support group” and not “self help” but “mutual help”. This can be a life long process of self-exploration.

[Alcohol: What to Do]

- Have a clinical Substance Abuse Assessment administered.
- Become aware of community substance abuse treatment resources for possible referral.
- Plan “Intervention” (if needed).
- For professionals and family members: Examine your personal behavior (enabling, denial, apathy).
- Consider expectations (compliance, maintenance).
- Consider consequences (realistic).

Alcohol: Miscellaneous

Facts

- Alcohol is the most commonly abused drug available today and it's legal!
- Alcohol Abuse/Dependency and its associated problems are some of the leading health concerns in the US.
- Health problems include: Lack of inhibition may lead to risk-taking behaviors both sexually and recreationally; Nicotine dependency is closely related to drinking behaviors; Liver disorders; Fetal Alcohol Syndrome; Alcohol also exasperates other forms of Mental Illness, i.e., depression, mania, anxiety disorders.
- Underage drinkers are consuming around 11-20% of the alcohol produced in the US (N&O, 2003).
- A 2001 survey in the Journal of School Health found that 47 percent of middle school students said they had their first drink at 9 years old or younger and nearly 1 in 5 had drunk alcohol, in the previous 30 days (N&O).
- Legal and social consequences abound, i.e., DWI's, Assaults, DV, DSS/CPS involvement, etc.
- Alcohol abuse is on the rise according to NIAA. About 4.5% of the adult population reported alcohol abuse in 2001-2002. This is up from 3.03 percent from a decade ago (N&O, 06/04).
- Alcohol abuse and alcoholism affected 17.6 million Americans in 2001-2002. This is up from 13.8 million in 1991-1992.

[Marijuana: Description]

- **Marijuana:** *cannabis sativa* is a hearty weed or plant that can grow just about anywhere. It is commonly referred to as hemp and marijuana and hashish are derived from it. It can grow up to 18 feet, has sturdy stalks and has been commercially valued for years for the manufacture of rope, twine, shoes, sailcloth and containers of all kinds. Pots made of hemp fiber have been discovered in archaeological digs in China dating back to the Stone Age. It is thought to be the oldest cultivated plant not to be used for food (Levinthal).
- Spaniards brought cannabis to the New World in 1545 and English settlers brought it to Jamestown in 1611, where it became a major commercial crop, along with tobacco.
- The chief psychoactive compound that produces the intoxicating effects is ***delta-9-tetrahydrocannabinol*** or ***THC***.
- The cannabis plant is best known for producing ***marijuana*** whose leaves and flowers are often dried and shredded. In the US it is often smoked, either in a pipe (bong or one-hitter) or in a cigarette (joint or blunt). Marijuana usually has an average THC concentration of about 1-4%. Concentrations can be as high as 6% in more potent strains such as ***sinsemilla*** (without seeds) or ***BC Buds***, a Canadian strain.

Marijuana: Description

- A much stronger form is created when the resin itself is scraped from the cannabis flowers and smoked. This form called **hashish** is most often found in Europe, Asia or the Middle East. It usually has a THC concentration of about 8-14%.
- The earliest direct reference to a cannabis product as a psychoactive agent dates from 2737 B.C. in China. The focus was on its powers as a medication for rheumatism, gout, malaria, and, strangely enough, absent-mindedness. Though its intoxicating properties were mentioned in the writings, its medicinal properties were considered more important.
- The Muslim world appreciated its psychoactive potential, even though alcohol was prohibited, the Koran did not specifically ban marijuana's use.
- In 1890 in the US, cotton replaced cannabis as the major cash crop in southern states. It continued to grow wild in the countryside during this time and was used in some patent medicines, though not as often as opium and cocaine. In the 1920's recreational use of marijuana became popular, possibly due to the social changes brought on by Prohibition. Used primarily by jazz musicians and people in show business, "tea pads" sprung up in major cities. Marijuana was not illegal during this time so not much attention was paid by the authorities. It was not considered a social threat.

[Marijuana: Description]

- In the early 1930's an anti-marijuana crusade began. The Federal Bureau of Narcotics began to view marijuana as a "pestilence single-handedly destroying a generation of American youth" (Levinthal). The change in social attitude was thought to be brought on by the high influx of Mexican immigrants who used the drug with regularity. With no data to support the claims of "violent behavioral consequences" of smoking marijuana, and the idea that during the Depression immigrants from were taking American jobs, Americans rallied against its use. Not surprisingly, in 1937 a tax law changed possession laws in the states and if one had not paid the "tax", then possession was illegal.
- Later, in the 1940's and 1950's it was thought that marijuana's use would be the "gateway" to other more damaging drugs such as heroin and cocaine.
- Today marijuana has been almost decriminalized. In certain states it may not be illegal to possess up to 1 pound (Alaska) for personal use. In NC, for possession of less than 1/2 ounce one could be issued a citation. Although the fears remain, most treatment centers will not admit adolescents to inpatient substance abuse treatment programs that report "just smoking marijuana". An additional diagnosis is often required.

Marijuana: Effects

- Marijuana is classified as a **Hallucinogen**. It's use produces a hallucinogenic effect though not as powerful as LSD. Smoking a hand-rolled cigarette, aptly called many things, a joint, reefer, blunt, or splif, most often serves to ingest marijuana.
- Just how much THC (the active ingredient) is administered depends on the concentration in the marijuana (quality) and on how deeply the smoke is inhaled into the lungs and how long it is held before being exhaled.
- Experienced smokers will ingest more THC than the novice by virtue of being able to inhale more deeply and being able to hold the smoke in his or her lungs longer, 25 seconds or longer, thus maximizing THC absorption. Effects are usually felt within seconds. Peak levels are usually reached within 10 minutes and start to decline shortly thereafter.
- Behavioral and psychological effects generally last from 2 to 4 hours. Low levels of THC can linger for several days before being absorbed into the fatty tissue and excretion from fatty tissue is notoriously slow. Due to this slow elimination rate, residual THC, left over from a previous administration, can intensify the effect of marijuana on a subsequent occasion. This means that a regular marijuana smoker may report a much more easily achieved high from smaller amounts of the drug than the intermittent user.

Marijuana: Effects

- The slow elimination of THC can have important implications with regard to drug testing. Urine testing for possible marijuana abuse (use) typically measures levels of THC metabolites (broken down remnants of THC). Because of the slow biodegradation of marijuana, these metabolites are often detectable in the urine even when the smoker no longer feels high or shows any behavioral effects. These metabolites can remain in the body for several days after smoking a single joint and up to several weeks from chronic use. Some tests are so sensitive that they can detect a positive level for marijuana from passive inhalation of smoke-filled air in a closed environment (a “contact high or buzz”). In short, for now, tests cannot detect when marijuana was smoked (if it has been smoked at all), just that exposure to marijuana has occurred.
- The **physiological** effects of marijuana use include increased heart rate (up to 160 beats per minute when does are high), blood pressure will either increase, decrease or remain the same, according to whether the individual is sitting standing or lying down. A dilation of blood vessels on the cornea resulting in bloodshot eyes will often peak about an hour after smoking a joint. There is often drying of the mouth and an urge to drink.
- Other effects may include increased appetite (munchies) and enhanced sexual responses. Expectations have much to do with this, usually according to the culture or interpersonal influences.

[Marijuana: Effects]

- It would be difficult to overdose on marijuana. It would require a dose equal to twenty thousand to forty thousand of the effective dose before death would occur. There has been no clearly documented case of death occurring from marijuana use alone.
- The **psychological** effects of marijuana use may not be felt on the first occasion of use. The inhalation techniques required to feel the effects may prove daunting initially. More likely the user will be instructed to focus on some aspect of the intoxication state in order to feel intoxicated (relaxing, slowing down, silliness). However, once the psychological effects begin to occur, they are fairly predictable (Levinthal). There are often feelings of euphoria, well-being, and peacefulness. There tends to be an increased awareness of one's surroundings and a sharpened sense of sight and sound. There may be a feeling that suddenly everything is very funny and even the most innocent comments may set off uproarious laughter. Even mundane ideas can be filled with profound implications, thus the individual may feel creativity has been increased. Also, time seems to pass more slowly while under the influence of marijuana, and there are reports that states of drowsiness, sleepiness and feeling dreamy occur.

[Marijuana: Effects]

- The **behavioral deficits** of marijuana use include being unable to carry out tasks that involve attention and memory. Speech may become increasingly fragmented and disjointed. With the rush of distracting ideas that come to mind when using marijuana, it is usually difficult to concentrate on new information coming in.
- Complex motor tasks, like driving a car, are also often poorly performed. It may not necessarily be a matter of the reaction time but more likely difficulty in attending to the peripheral information and making an appropriate response while driving. In other words, the driver using marijuana may stop as quickly as they normally would but may not be as quick to notice things they should stop for.
- Another problem to consider is the fact that the decline in sensory-motor performance may persist well after the point the marijuana user feels high, when there has been chronic heavy use. A recent study indicated that significant impairments in attention and memory tasks among daily users 24 hours after they last used the drug. This may be due to the very slow elimination rate of this drug.

[Marijuana: Problems]

- The question for the past 40 years has been “Is chronic marijuana smoking harmful over a period of time?” This question can present problems in diagnosis and treatment.
- Studies on **tolerance** (lesser sensitivity, a criteria for Dependence) for marijuana smoking have some interesting findings. It seems that there is the appearance of a “**reverse tolerance**” (a greater sensitivity) of sorts taking place. Called “**sensitization**” this means when one smokes marijuana repeatedly, it seems to take less of the drug to notice effects. So, experienced smokers seem to become intoxicated more quickly than inexperienced smokers.
- As mentioned earlier, reaching an effective high and learning the technique of inhalation is the task, requiring some degree of practice. By doing so, the experienced smoker can champion the art “getting high” and thus become intoxicated more quickly.

[Marijuana: Problems]

- Also, again we must consider the elimination rate of the drug. The fact that residual amounts of THC remain in the body with chronic use, which can increase the overall THC levels, leads researchers to report that the total THC level is the culprit. Expectations may again play a role here. If one learns to expect to feel a certain way, the change in behavior may be more quickly felt or observed.
- **Withdrawal** (another Dependence criteria) has been observed in studies following chronic administration of marijuana but the dose was quite extreme. Under normal conditions (1 joint, with daily use for 28 days), physical withdrawal symptoms were not observed. However, psychological dependence may be the issue. Individuals who find it pleasurable to lose a bit of control and predictability in their lives may be drawn back to marijuana again and again psychologically, mainly for that effect.

[Marijuana: Problems]

- **Amotivational Syndrome** is defined as a state of listlessness and personality change involving a generalized apathy and indifference to long-range plans. This has long been stated to be a side effect of chronic use of marijuana. To assume and solely blame marijuana for this condition may be oversimplifying a very complex constellation of issues. First to consider is the environment the user may live in, the significant others involved in their life and their levels of functioning, “pre” use behaviors, etc. Equally important to consider would be that individual who smokes marijuana may also be involved in a deviant subculture, whose members feel alienated from traditional values and goals for the future. Smoking marijuana may be just one acceptable activity for its members to feel “different”.
- **Gateway Hypothesis** is the belief that marijuana (or other drugs) abuse/use can lead to a greater incidence of drug abuse in general. There is statistical data to support this hypothesis. The majority states that *most* young marijuana smokers do not go on to use illicit drugs such as heroin or cocaine, however marijuana users in general are more likely to consume a wide range of illicit drugs during their lifetime than non-marijuana users. The greater the frequency of smoking and the earlier a person engages in such behavior, the greater the likelihood this individual will become involved in drugs in a serious manner.
- According to researchers, intrinsically, the pleasurable property of marijuana use itself creates a biological urge to use more potent substances through both drug tolerance and drug dependence.

[Marijuana: Problems]

- Speaking socioculturally, it could also be because of the activities, friends and acquaintances that are associated with marijuana smoking. Thinking like this one has to consider that if the individual is associating with others who not only using marijuana but also other illicit drugs, these friends are likely to have positive attitudes about drug abuse in general and often provide opportunities for drug experimentation (Levinthal).
- If one is to support the gateway hypothesis then it is more likely that the drugs to blame are legal ones, alcohol and nicotine. These drugs are typically available to young people at an early age. The consensus of research points out that early exposure to psychoactive substances in general represents a “deviance-prone pattern of behavior”, that will reflect a higher incidence of exposure to drugs in the future by that individual or group.
- Not really considered a problem, that is except legally, **medical use** of marijuana has recently been supported. Its use has begun for disorders such as glaucoma, asthma and chemotherapy-related nausea.
- Using THC eye drops, smoking or ingesting marijuana has been found to significantly reduce intraocular pressure, a condition indicative of glaucoma.
- Orally administered (not smoking) THC has been found to result in bronchodilation, which will have a positive effect on asthmatic symptoms.

[Marijuana: Problems]

- Use of marijuana (or THC) with nausea related to chemotherapy or AIDS has had results that are promising. Extreme and debilitating nausea, loss of appetite and loss of body weight are all symptoms that are clearly counterproductive in help individuals deal with cancer or AIDS. The use of marijuana has seemingly provided significant relief for sufferers but is not without problems. Most are related to who should be given the right to use it and how should it be controlled or restricted. There are several THC (or some variation) drugs currently legally available to patients, dronabinol (Marisol) and nabilone (Cesamet). There are also certain physicians that are allowed by the their respective states (due to legislation) to monitor limited use of marijuana.
- Marijuana has been essentially decriminalized in many states, including NC. Possession of usually less than 1 ounce will result in a citation in most areas. Meaning a small fine rather than imprisonment. Some found it surprising that there was no real upturn in use based on decriminalization. In some areas (California), college students' attitude surveys show acceptance has even declined following decriminalization.

[Marijuana: Treatment]

- The treatment options for marijuana abuse or dependency is essentially the same as alcohol. The only problem is that because there is no fear of death related to the withdrawal it often not considered a priority to treat, especially with adolescents.
- Oftentimes, if there is not a co-existing condition, such as a mood, anxiety or personality disorder, it is difficult to place someone in treatment. This may be due to insurance changes (HMO's) or the treatment center's admission policy. Whatever the case, without other "problems", treatment options are often limited.

Cocaine: Description

- Cocaine is derived from small leaves of the coca shrub, *Erythroxylon coca*. It grows in the high altitude forests and fields that run along the slopes of the Peruvian and Bolivian Andes in South America.
- Cocaine use has a long history, beginning with chewing the leaves (which contain about 2% cocaine) by the Inca civilization in the 13th Century and before. It was much appreciated for its principal effect, increased strength and stamina, for the workers who toiled in this harsh environment. It was even used to measure distance. A journey was often described in terms of the mouthful of leaves a person would chew when making the trip.
- It was felt to be a gift from the god Inti to the Incas, allowing them to endure life in the Andes without suffering. It is still widely used by the men of Peru, who use it to fight fatigue or for its socialization properties (Levinthal, 1999).
- Coca leaves were shipped to Europe from the Spanish colonies after the conquest of the Incas but their potency was nearly gone after the long sea voyage. Feeling the reports of its effects were exaggerated, coca leaves were ignored for nearly 300 years. However, in the 1850's the active ingredient in the coca plant was chemically isolated and the patent medicine industry in the US and Europe wasted no time in taking advantage of cocaine's appeal.

Cocaine: Description

- The most successful commercial product of cocaine was a mixture of coca and wine was invented in 1863 and called “Vin Mariani”. It was hailed by many celebrities of the time and promoted as a miracle elixir.
- Later, in 1885, an Atlanta pharmacist concocted a mixture of coca, soda water and the syrup of the African kola nut to form Coca-Cola. Advertised as a brain tonic that made one feel productive and as a remedy for such ailments as sick headaches, melancholia, and assorted nervous conditions, it was sold in pharmacies at soda fountains nation wide.
- The Harrison Act of 1914 changed all this, placing restrictions on its use in patent medicines. The Coca-Cola Company sensing the growing tide of sentiment against cocaine, changes its formula in 1903 from regular coca leaves to “decocainized” coca leaves, which retained the coca flavoring that remains to this day. The boost received today is most likely due to the sugar and caffeine in the drink.
- Cocaine was later used in medicine. It was studied for its anesthetizing properties with nerves and on whole limbs. The researcher acquired a rather nasty cocaine habit of his own, as did Sigmund Freud. Dr. Freud suffered from depression and self-doubt early in his career. He tried cocaine and, not surprisingly, his mood changed and he became an advocate of its use. It is reported that though he did not become dependent on cocaine he did advise his patients, friends and family to use it. He later became disillusioned with its use, as did most of Europe and the US, and downplayed its benefits. Between 1880 and 1910 the public reaction to cocaine had gone from wild enthusiasm to widespread disapproval. A similar cycle of attitudes took place between 1970 and 1985 (Levintahl).

Cocaine: Effects

- Although the effects of cocaine on the user vary in degree with the route of administration, the purity of the dose and the user's expectation about the experience, certain features remain the same.
- The most notable reaction from cocaine is the powerful burst of energy. If injected, the effect is virtually instantaneous and very intense (a "rush"), peaking in 3-5 minutes and wearing off in about 30-40 minutes.
- If snorted (inhaled through the nose), the effects begin in about 3 minutes and peaks in about 15-20 minutes and wearing off in 60-90 minutes. Users generally feel a general sense of well-being but use may precipitate a panic attack. When cocaine levels return to normal the mood changes dramatically. The user becomes irritable, despondent and depressed. These aftereffects become uncomfortable enough to produce a powerful craving for another dose. Depressive symptoms can also be induced after a cocaine "run", (several days in a row of using cocaine). Due to this, cocaine has long been recognized as a significant risk factor for suicide attempts.
- Although once considered to be somewhat of a sexual aphrodisiac, the opposite could prove to be true. Sexual desire and performance may be related more to expectations than actuality. The desire for the drug will often take the place of the desire for sex, as is true for most illicit drugs.
- Biologically cocaine will produce a sudden elevation in the sympathetic branch of the autonomic nervous system. Respiration and heart rate increase, appetite is diminished, blood vessels constrict, pupils of the eye dilate and blood pressure rises. The user will begin to sweat and begin to appear suddenly pale. These powerful sympathetic changes can lead to cerebral hemorrhage or congestive heart failure.

[Cocaine: Effects]

- Chronic use (repeated and continued use) of cocaine produces many undesirable effects, which include mood changes (that can seemingly only be alleviated by more use), irritation, depressive symptoms, and paranoia. Symptoms of extreme paranoia and its accompanying hallucinations make up a serious mental disorder referred to as **cocaine psychosis**.
- There are medical uses for cocaine including that of a local anesthetic. If applied to the skin it can block the transmission of nerve impulses thus deadening sensations from that area where applied. The dangers are that it may inadvertently be absorbed into the bloodstream and that it may be abused. The effects are also brief, because cocaine breaks down so rapidly. Synthetic drugs such as lidocaine (Xylocaine), work so much more efficiently that they are widely used in dentistry.
- In the brain, cocaine enhances the activity of dopamine. It serves to block the reuptake process at the synapse. It has been determined that the euphoria experienced through cocaine is directly related to the effect of dopamine in those regions of the brain that control pleasure and reinforcement. Though a pattern of tolerance develops with cocaine, others can sometimes experience a hypersensitivity to the drug, meaning long-term users can become more sensitive to the drug over repeated administrations. This is referred to as the **kindling effect**. This can prove dangerous due to repeated exposure to cocaine lowering the threshold for seizure activity, thus increasing the likelihood of overdose at relatively low doses.

(All above are from Leventhal)

[Cocaine: Problems]

- There is no question that cocaine is dangerous, both biologically and sociologically. Since the introduction of crack in the mid 1980's, which produces a 75% purity, crime rates in most areas (urban and rural) has skyrocketed. Cocaine-related medical emergencies have sometimes doubled and a higher number of familial systems are being supervised by child and family service agencies that ever before.
- There was much coverage and concern related to “crack babies” in the late 1980's. These babies were described as having been born to crack-using mothers and were born with lower birth weights and smaller head circumferences, while displaying tremors, excessive crying, disturbed sleep patterns and diminished responsiveness.
- The question was whether there would be long-term deficits in social skills or mental ability, as they grew older. Of question in this type of linear thinking are the other variables to consider. Most likely the mother was a polydrug abuser, using not only cocaine but also other licit and illicit substances such as alcohol, marijuana and nicotine.

[Cocaine: Problems]

- Socioeconomic status could play a role in the equation as well, limiting the degree and frequency of services available to assist in the pregnancy and possibly contributing to poor maternal nutrition.
- Also important to consider is prenatal care; active drug users don't usually report for many physician office visits. That leaves the issue of proper nurturing provided by the parents/parent. Drug-involved relationships don't usually last. This usually leads to single parenting and if this individual has a drug problem that keeps them busy, child rearing is not often a priority. Children often grow up with minimal contact with caregivers, which can lead to all sorts of developmental issues (reactive attachment disorder, learning deficits, etc).
- Environmental factors should also be examined. These individuals do not provide living environments that support healthy lifestyles. Criminal behavior abounds, as does exposure to criminals and the elements that support it.

(All above are from Levinthal)

[Cocaine: Treatment]

- Cocaine dependent individuals are often overrepresented in inpatient substance abuse treatment programs.
- Again, here there is no real physical danger in cocaine withdrawal; detoxification is often marked by a profound depressive mood, irritability, severe headaches and disturbances in sleep.
- The first 24-48 hours are clearly the most difficult. The more compulsive user may need closer supervision.
- Relapse rates exceed those of other drugs due to the impulsive/compulsive nature of this drug.
- Psychological dependency issues often leaves one at risk long after the physical withdrawal is over.
- Shorter inpatient treatment exposures are the rules of thumb now, with 7-14 days the norm. An intensive outpatient program often follows this for several months.

[Cocaine: Treatment]

- There are outpatient programs, both regular OP and IOP, available to users usually through the local community mental health programs and private providers.
- Services often include a comprehensive assessment process with close attention to individualized service/treatment planning.
- Care is provided in individual therapy, group therapy, family therapy, case management, and aftercare.
- Due to the belief that the longer the continuums of care for cocaine users the better, halfway houses (with outpatient psychotherapy) are often the aftercare programs of choice.
- 12-Step attendance is highly recommended, for the same reason it is utilized as an adjunct to ongoing therapy for alcohol dependent individuals, support.
- Reducing risk factors and increasing/creating resiliency factors is the equation of preference.

Methamphetamine: Description

- Methamphetamine is a highly addictive psychostimulant that affects the CNS (which includes the brain and spinal cord).
- Commonly referred to as “meth”, “speed”, “crank”, “crystal”, “gas”, “ice”, it is a white, odorless, bitter tasting crystalline powder that easily dissolves in water or alcohol.
- It was developed earlier this century as a patent drug, amphetamine. It was used originally in nasal decongestants and bronchial inhalers.
- Though similar in chemical structure to amphetamine, it has a more pronounced effect on the CNS.
- As stated, there is a high potential for abuse therefore it is a Schedule II narcotic stimulant, and is only available by prescription, which is non-refillable. There are very few medical necessities for its use such as, narcolepsy, ADD, and for only short-term use, obesity.
- Basically, all addictive drugs have 2 things in common: they produce an initial pleasurable effect, followed by a rebound unpleasant effect.

Methamphetamine: Description

- Methamphetamine, through its stimulant effects, produces a positive feeling, but later leaves a person feeling depressed. This is because it suppresses the normal production of dopamine, creating a chemical imbalance. The user physically demands more of the drug to return to normal. The pleasure/tension cycle leads to loss of control over the drug and addiction.
- This drug essentially short-circuits a person's survival system by artificially stimulating the reward system, or pleasure areas in the brain. This often leads to increased confidence in methamphetamine and less confidence in the normal rewards of life. This happens on a physical level at first and then on a psychological level. The result is a decreased interest in the other areas of life and an increased reliance on methamphetamine to meet those needs.
- Methamphetamine is quite different from a related stimulant, cocaine. Although there are similar behavioral and psychological effects, there are basic differences in how they work at the level of the nerve cell. Interfering with normal neurotransmission, both result in an accumulation of the neurotransmitter dopamine and this excess of dopamine concentration appears to produce stimulation and feelings of euphoria. Dopamine is involved with our natural reward system.
- The differences are that cocaine is quickly removed and almost completely metabolized in the body, methamphetamine, on the other hand, has a much longer duration of action and a larger percentage of the drug remains unchanged in the body. This results in methamphetamine being present in the brain longer, which ultimately leads to a prolonged stimulant effect (NIDA website).

Methamphetamine: Description

- Methamphetamine can be smoked (in a light bulb or on aluminum foil), inhaled (“snorted”), orally ingested or intravenously injected (“shooting up”).
- Immediately after smoking or injecting the drug, the user’s first effect is an intense “rush” or flash that lasts only a few minutes. This “rush” has been described as extremely pleasurable.
- Snorting or oral ingestion produces euphoria but not an intense rush. Snorting produces effects usually within 3-5 minutes.
- Oral ingestion within 15-20.
- As with other stimulants, methamphetamine most often is used in a “binge and crash” pattern. Because tolerance occurs within minutes, meaning that the pleasurable effects disappear even before the drug concentration in the blood falls significantly, users try to maintain the high by binging (a spree, excessively using) on the drug.
- A toxic reaction (or overdose) can occur at relatively low levels, 50 milligrams of pure drug for a non-tolerant user. Metabolic rates vary from person to person and the strength of the illegal form of the drug varies from batch to batch, so there is no way of professing a “safe” level of use.
- In overdose, high fever, convulsions and cardiovascular collapse may precede death.
- Because stimulants affect the body’s cardiovascular and temperature-regulating systems, physical exertion increases the hazards of methamphetamine use.

Methamphetamine: Description

- Methamphetamine is often manufactured in makeshift labs in mobile homes, rural areas of farming communities, hotel rooms and in mobile labs (campers).
- The Methamphetamine Control Act of 1996 was put in place to control access to key chemicals used in its production and to increase criminal sentences for its possession and distribution.
- Methamphetamine hydrochloride is easily produced using the controlled substances ephedrine and hydrochloric acid.
- When ephedrine is not available over-the-counter pseudoephedrine (found in cold and asthma medications) is utilized.
- Hydrochloric acid is a necessary ingredient in one of the major manufacturing processes and although strictly controlled, it can be created by combining red phosphorous and iodine, both unregulated chemicals.
- Since ephedrine is a controlled substance, drug dealers use pseudoephedrine, processing it to remove buffers and produce the highly valued ephedrine.

Methamphetamine: Description

- Other ingredients used in its manufacture include battery acid, lye, brick acid, lantern fuel, and antifreeze. Just a reminder, these “cooks” are not usually chemist or scientist by trade, but drug dealers who may not have the user’s best interest in mind!
- If you suspect a lab is operating in your neighborhood the following may be clues:
 - Unusually strong odors, similar to that of fingernail polish remover or cat urine.
 - Renters who pay cash.
 - The stockpile of or discard of packages of large amounts of products such as cold medicines, antifreeze, drain cleaner, lantern fuel, coffee filters, batteries, duct tape, clear glass beakers and containers.
 - Residencies that have windows that are blacked out or foiled over.
 - Residencies with lots of nighttime traffic.

Methamphetamine:

Effects

- The most notable effects or signs of methamphetamine use are: anxiousness, nervousness, incessant talking, extreme moodiness and irritability, purposeless and repetitious behavior, such as picking at skin or pulling out hair, sleep disturbances, false sense of confidence and power, aggressive or violent behavior, disinterest in previously enjoyed activities and severe depression.
- The effects of methamphetamine alter the mood in different ways, according to the method of administration.
- It stimulates the CNS with effects lasting anywhere from 4 to 24 hours. Even small amounts can produce euphoria, increased alertness, paranoia, decreased appetite, and increased physical activity.
- Other CNS effects include writhing, jerky or flailing movements, irritability, extreme nervousness, insomnia, confusion, tremors, anxiety, aggression, incessant talking, hypothermia, and convulsions. Hypothermia (an extreme rise in body temperature, as high as 108 degrees) and convulsions can result in death.
- Methamphetamine use can produce chest pain and hypertension, which can result in cardiovascular collapse and death. It can cause acculturated heartbeat, elevated blood pressure and can cause irreversible damage to blood vessels in the brain.

Methamphetamine: Effects

- Other physical effects include pupil dilation, respiratory disorders, dizziness, teeth grinding, impaired speech, dry or itchy skin (due to dehydration from temperature rise), loss of appetite, acne, sores (from itching), numbness and sweating.
- Methamphetamine can not only modify behavior in an acute state but after taking it for long periods of time the drug literally changes the brain in fundamentally and long-lasting ways. It kills by causing heart failure, brain damage, and stroke and it can induce extreme acute psychiatric and psychological symptoms that can lead to suicide, assault and even murder.
- Symptoms of prolonged methamphetamine can resemble those of schizophrenia and are often characterized by anger, panic, paranoia, auditory and visual hallucinations, repetitive behavior patterns and formication (delusions of parasites or insects on or under the skin. Methamphetamine-induced paranoia can result in homicidal or suicidal thoughts.
- Long-term effects include fatal kidney and lung disorders, brain damage, liver damage, blood clots, chronic depression, hallucinations, violent and aggressive behavior, malnutrition, disturbed personality development, deficient immune system, and methamphetamine psychosis, a mental disorder that may be paranoid psychosis or may mimic schizophrenia.
- Methamphetamine's severity and length of withdrawal symptoms vary with the amount of damage done to the body's normal reward system. The most common symptoms include drug craving, extreme irritability, loss of energy, depression, fearfulness, excessive drowsiness or difficulty in sleeping, shaking, nausea, and palpitations, sweating, hyperventilation, and increased appetite.

Methamphetamine: Problems

The following are but a few problems associated with methamphetamine:

- Increase in criminal activities in areas where methamphetamine is being produced
(i.e., illegal purchase of medications/chemicals necessary for its production, theft of chemicals; sale/purchase of finished product, etc.).
- Increased HIV and hepatitis B and C transmission are likely consequences of its use, particularly in individuals who inject the drugs and share injection equipment.
- Research also indicates that methamphetamine and other related psychomotor stimulants can increase libido in users, in contrast to opiates, which actually decreases the libido. However, long-term methamphetamine use may be associated with decreased sexual functioning, at least in men. Additionally, methamphetamine use seems to be associated with rougher sex, which may lead to bleeding or abrasions. The combination of injection and sexual risk may result in HIV becoming a greater problem among methamphetamine abusers than among opiate and other drug abusers.

Methamphetamine: Problems

- Fetal exposure to methamphetamine also is a significant problem in the US. Research indicates that its abuse during pregnancy may result in prenatal complications, increased rates of premature delivery, and altered neonatal behavioral patterns, such as abnormal reflexes and extreme irritability. Methamphetamine abuse during pregnancy has also been linked to congenital deformities.
- Each pound of methamphetamine produced leaves behind 5 or 6 pounds of toxic waste. The cooks often pour leftover chemicals and byproduct sludge down drains in nearby plumbing, storm drains, or directly into the ground. Chlorinated solvents and other toxic byproducts used to make methamphetamine pose long-term hazards because they persist in soil and groundwater for years. Clean-up costs are exorbitant because solvent contaminated soil usually must be incinerated. The average cost of a cleanup is about \$5000 but can run as high as \$150,000.

Methamphetamine: Treatment

- At this time the most effective treatments for methamphetamine dependency are cognitive/behavioral interventions (either inpatient or outpatient treatment). This will assist in modifying the individual's thinking, expectancies and behaviors and may increase skills in coping with various life stressors and serve to reduce the likelihood of relapse.
- Recovery support groups also appear to be effective adjuncts and can lead to long-term benefits.
- Pharmacologically, there appears to be limited or few successes but antidepressants seem helpful in combating depressive symptoms seen in methamphetamine users.
- ER physicians have begun to establish certain protocols for those patients that present in methamphetamine overdose. Because hyperthermia and convulsions are common and often fatal complications of overdoses, ER treatment focuses on immediate physical symptoms. Patients are often cooled off in ice baths and anticonvulsant drug may be administered.

Methamphetamine: Treatment

- Acute methamphetamine intoxication can also be handled by observation in a safe and quiet environment. In cases of extreme excitement or panic, treatment with antianxiety agents such as benzodiazepines (Valium, Xanax) has proven helpful.
- In cases of methamphetamine-induced psychosis, short-term use of neuroleptics has proven successful.
- Some treatment providers report that methamphetamine abusers are the most difficult population to treat. They relapse frequently and are exposed to many triggers and cues in their recovering environment. Continuous cue recognition and resolution for and motivation toward identified goals are vital.

[All above from both Levinthal and NIDA (National Institute on Drug Abuse) website]

Heroin: Description

- In order to better describe **heroin**, first, a brief description will be provided for opium, its base ingredient.
- Opium is derived from the ***opium poppy***, an annual plant, which grows 3-4 feet high, and is better suited to the hot weather in Laos, Thailand, Afghanistan, Mexico and Columbia. The opium plants are typically 4-5 inches in diameter and can be white, pink, red or purple.
- Harvesting of opium has not changed for more than three thousand years. When the petal of the plant have fallen but the seed capsule of the plant underneath the petals have not yet ripened, laborers make small incisions in the capsules, allowing a milky white juice to ooze out. The next day the substance has oxidized and hardened by contact with the air. This reddish brown substance with the consistency of heavy syrup is then collected and allowed to darken further and will eventually form small gum-like balls that look like tar.
- Opium was first described in detail in third century B.C., but was probably used at least a thousand years before that. Western Europe was introduced to opium in the 11th or 12th Century by returning crusaders.
- The first medicinal use of opium was by a European physician named Paracelsus. He introduced a drink containing opium, wine and a mixture of spices named ***laudanum*** (meaning in Latin, “something to be praised”). Opium was recommend for practically every known disease and disorder of the time. Many others through the centuries followed his lead.

[Heroin: Description]

- In the 18th century, China invented a novel form of opium use, smoking it. Stating briefly, the British began to appreciate Chinese tea in the late 1700's and felt in order to develop trade with China they needed something to trade. They had conquered Bengal Providence in India and suddenly had a monopoly on raw opium. This became a major item of trade between the 2 countries. Opium dependence became a huge problem in China which led to the Opium War, which eventually led to defeat for China, ultimately Hong Kong was signed over to Britain until 1997. In 1860 China signed a treaty, which legalized opium within its borders. Opium problems in Britain were escalating due to its overuse as a cure all. These problems eventually began to present in the US.
- In a survey of 35 Boston drugstores in 1888, 78% of prescriptions that had been filled 3 or more times contained opium. It was being cultivated in Vermont, New Hampshire, Louisiana, and Florida and later in California and Arizona.
- It was not until 1942 that the growing of opium poppies was outlawed in the US.
- By the nineteenth century opium use by women outnumbered men by as much as 3 to 1. The principal difference was the attitude of the time. Recreationally drinking alcohol, which had a much more macho connotation, was much more acceptable for men, while consuming laudanum was much more acceptable for women of the time.

[Heroin: Description]

- With the immigration of the Chinese to build the railroads of the West, anti-opium sentiment began to swell, based primarily on anti-Chinese prejudice. Opium smoking was beginning to be identified as a moral issue and was becoming regulated. At about this time the opium-related drugs began to emerge, which presented problems of their own.
- The first drug to appear was **morphine** in 1803. A German drug clerk first isolated a yellowish-white substance in raw opium that turned out to be its primary active ingredient. It was named for *Morpheus*, the Greek god of dreams.
- Codeine was later isolated (0.5 percent of raw opium) and thebaine (0.2 percent raw opium).
- In 1856, with the advent of the hypodermic syringe, morphine began to become recognized as a widely accepted medical drug. Injected into the bloodstream, it could bypass the gastrointestinal tract thus speeding the delivery of its effects.

Heroin: Description

- This new invention (the syringe) was introduced at about the same time as the Civil War in the U.S. (1861-1865) and the Franco-Prussian War in Europe (1870-1871). Though syringes were slow to make their presence known on the battlefield, oral doses of opium and morphine were widely distributed to injured soldiers. Many became dependent on opium and maintained the condition for years after the war. The affliction was so widespread among returning veterans that the condition was often called “the soldier’s disease”.
- In 1898 a German drug company, Bayer, introduced a new painkilling morphine derivative called **heroin**, from the German term, *heroisch*, meaning powerful. They had successfully developed an analgesic drug years before, aspirin.
- 3 times stronger than morphine, heroin, was initially believed to be free of morphine’s dependency-producing problems. It was hailed as a safe cough-suppressant, preferable to codeine. There were at least 40 medical studies from 1898-1905 concerning injections of heroin and they failed to pick up on its potential for abuse/dependence. We now know the potential for abuse exceeds that of morphine but was not fully recognized until as late as 1910.
- The end of the twentieth century marked a turning point in history for opium and its derivatives. Dependency was on the rise; conservative estimates report that by 1900, 250,000 Americans were opiate-dependent (the belief was that it was really 3 times that). This could be 1 out of every 100 Americans, young and old, living at the time. Compare this with the estimate of 300,000 opiate/heroin abusers in the U.S. in the 1990’s, when the population was 4 times greater than in 1900. This seems to put into perspective how extensive opiate abuse was during the turn of the century.

[Heroin: Description]

- The Harrison Act of 1914 changed the face of opiate use, abuse and dependency in the U.S. It did not ban opiate use but required doctors to register with the IRS the opiate drugs (as well as cocaine and coca products) that were being prescribed to their patients and pay a small fee for the right to prescribe these drugs. In the 1920's the U.S. Supreme Court handed down a decision that interpreted the Harrison Act more broadly. The Court stated that a physician could not prescribe drugs merely because an addicted individual needed to maintain their habit, only for a medical necessity.
- In 1924, opium importation into the U.S. became illegal, that is, if the opium was to be made into heroin. Since there was no way to determine if its purpose was illegal, legitimate sources were cut off and the smuggler became the importer.
- The price climbed to 30-50 times its legitimate costs due to the risk presented in its importation. Organized crime began to take over the drug supply and intravenous heroin became the opiate drug of choice.

Heroin: Effects

- If heroin is injected intravenously, there is an almost immediate tingling sensation and a sudden feeling of warmth in the lower abdomen, said to resemble a sexual orgasm, for at least a minute or two. Next, a feeling of intense euphoria, often described as a “**rush**”, followed later by a state of tranquil drowsiness, that is related to by heroin users as being “**on the nod.**” The effects can last up to 2-4 hours.
- The intensity of a response and other effects can be variable and are often dependent on following:
 - The quantity and purity of the heroin taken,
 - The route through which the heroin is administered (i.e., inhaled, smoked, injected),
 - The interval since the previous dose of heroin,
 - The degree of tolerance of the user to heroin itself.
- Also to consider are the **psychological** factors that impact what a user feels after taking heroin:
 - Issues related to the setting the heroin is used in,
 - Issues related to the circumstances under which it is used,
 - The expectations of the user.
- Interest in sex is greatly diminished during the “high”, especially in male heroin abusers, due in part to the reduction of levels of the major male sex hormone, testosterone.

Heroin: Effects

- First-time users may not find the experience as pleasant as thought. Opiates cause nausea and vomiting, as the reflex centers in the medulla are suddenly stimulated. Some first-timers find this reaction so unpleasant that they never try the drug again, while others find the effects so euphoric, they report the nausea and vomiting are irrelevant.
- Other physiological symptoms include:
 - A release of histamine into the bloodstream, which produces an intense itching over the entire body and a reddening of the eyes.
 - There will be papillary constriction, which will result in the characteristic “pinpoint pupils, an important diagnostic sign for narcotic abuse.
 - Heroin (as well as other sedative/hypnotic drugs) also reduces the sensitivity of respiratory centers in the medulla to levels of carbon dioxide, resulting in a depression in breathing. This is a major risk factor that can result in death.
 - Blood pressure is also depressed with heroin use.
 - Another symptom that may not be lethal but is very distressing to heroin abusers is a slowing down of the gastrointestinal tract, leading to a labored defecation and long-term constipation.

[Heroin: Effects]

- Overtime, the prime feature of chronic heroin use is the tolerance that develops, but the tolerance effects themselves may not be across the board with all users. The constipation may not get much worse with chronicity and the pinpoint features of the eyes will usually subside. The greatest signs of tolerance are often seen in the degree of analgesia, the euphoria and respiratory depression. The intense thrill of the intravenous injection will be lessened. The overall decline in reactions is, of course, dose dependent; if the dose level is high, then tolerance effects will be more dramatic than if dose level is low.
- Heroin withdrawal, though very uncomfortable, is usually not life threatening.
- The severity of withdrawal symptoms for heroin is dependent on whether dose levels are being sustained. When dose levels are under 10 percent the withdrawal symptoms were comparable to a moderate to intense case of the flu. More severe cases can result in significant loss of weight and body fluids.

Heroin: Effects

Usually the withdrawal symptoms are the mirror image of the symptoms observed when a person is under the influence of heroin. For example:

- Lowered body temperature = Elevated body temperature.
- Decreased blood pressure = Increased blood pressure.
- Skin flushed and warm = Piloerection (goose flesh)
- Pupillary restriction = Tearing, runny nose
- Constipation = Diarrhea
- Respiratory depression = Yawning, panting, sneezing
- Decreased sex drive = Spontaneous ejaculations and orgasms
- Muscular relaxations = Restlessness, involuntary twitching and kicking (running leg syndrome)
- Nodding stupor = Insomnia
- Analgesia = Pain and irritability
- Euphoria and calm = Depression and anxiety

Heroin: Effects

- Important to consider is that we are dealing with endorphin-sensitive receptors that are being stimulated by the opiates coming in from outside the body. Overtime, the production of endorphins would decrease and the body would become “dependent” on taking the drug in for equilibrium. Withdrawal would include cutting off those receptors from the external source, resulting in an action that is opposite of the one that would have occurred. The normal production of the endorphins would reestablish itself overtime and the need for heroin will diminish.
- Continuing to take heroin, despite problems, (socially, legally, physically), is said to be related to 2 issues:
- The fear and distress associated with the prospect of experiencing withdrawal symptoms, along, of course, with the craving of the effects themselves, as a result of the physical and psychological dependence leads many addicts to choose to continuing using.
- Long-term heroin use frequently produces such a powerful conditioned-learning effect, that the social setting in which the drug taking occurred takes on reinforcing properties of its own. Even the act of inserting a needle can become pleasurable for some heroin abusers. Treatment for these individuals must address a range of physical, psychological and social factors to be successful.
- In thinking about lethality, heroin itself is considered to be a relatively nontoxic drug. Organs are not damaged, destroyed or even threatened by a lifetime of narcotic addiction. There are no major malformations of the body, no tissue damage, or no physical deterioration directly traceable to any opiate including heroin.

Heroin: Effects

- This is not to say that heroin use is without concerns about dangerousness, with potential lethality. The concerns have to do with the acute effects of the drug. There is a relatively small ratio of LD (lethal dose) to ED (effective dose). If one increases a dose that produces a high by, say, 10-15 times, then you may be in the dosage range that is potentially lethal. Death by overdose is an ever-present risk with heroin use. In the case of illicit heroin use, a street drug with questionable potency in any given dose, the hazards are always at hand.
- The drug may look like the same amount every time, but may vary widely in content, from none at all to 90%.
- Also of concern are the possible adverse effects from any toxic substance that has been “cut” (decreasing potency by adding an additional substance) with the heroin.
- In addition, many heroin users do not restrict their drug use to just that of heroin. Some use other drugs to supplement their high such as cocaine (speedball), alcohol, Valium, and barbiturates. These drugs can also lead to problems with overdose potential.
- Some who abuse heroin may also die from other physiological reactions. Some may die so quickly that they die with the needle still in their veins. This could be due to a massive release of histamine or an allergic reaction to some filler (cut) in the drug to which the abuser was hypersensitive.
- Of concern as well is the ever-present risk of hepatitis or HIV infection through intravenous drug use. This concern has led to needle exchange programs (Harm Reduction) and large education programs through most heroin treatment programs (methadone).

Heroin: Problems

- Through the last 30 years, society has come to view the heroin abuser as the ultimate “dope addict”. Many believe that heroin abusers are on a 4 to 8 hour schedule of getting high and seeking more drug. It is thought that to sustain this lifestyle, the heroin user commits a continuing series of predatory crimes.
- To the contrary, studies have found that the majority of the heroin abuser’s income is derived from victimless crimes (i.e., pimping or prostitution) and noncriminal activities (i.e., holding a job).
- Another point to consider is that of the “occasional” heroin user. The question is whether an individual can “control” their use of heroin. The reality is that for every regular heroin user in the US there are at least 3 or 4 occasional users who do not appear to be physically dependent on the drug. The practice of paced or controlled use of heroin is known as **Chipping** and the user is referred to as a **Chipper**.
- The difference in these individuals may lie in their expectations about the drug, their chemical makeup of the brain, sociocultural differences, and motivational differences. They rarely use on a binge basis, they tend to use heroin for relaxation and recreation rather than escape or to reduce depression.
- For a period in the 1990’s, “heroin chic” was popular; this featured ads with models with an emancipated appearance and poses that suggested the experience of heroin abuse. This seemed to foster a growing acceptance of heroin abuse. Ridiculed, the pendulum has swung; now the look is passé.

Heroin: Problems

- Another problem to consider is the increasingly pure heroin available to users. Competition for improved sales over other drugs (specifically crack) has forced dealers to improve the quality and decrease the “cut”. This means that it no longer needs to be injected to feel its effects. It can now be snorted or smoked.
- Snorting or smoking reduces the risk of spreading HIV/AIDS (contaminated needles), and attracts “needle phobic” users to the drug, which, in turn, makes this form of usage more “marketable” for the “sales staff”.
- Snorting or smoking does not reduce the risk of overdose or prevent dependence on the drug. Nor does it consider the issue of relaxed inhibitions on unprotected sex or other at risk behaviors connected with lowered inhibitions.
- The environment one buys, sells, uses in or associates in and with places one at greater risk than that of the overdose. Dealers often do not have one’s best interest in mind! Communities that tolerate drug sales are often “war zones” and dangerous.
- The greatest problem associated with heroin use is the risk of transmission of blood borne pathogens (specifically HIV/AIDS and Hepatitis). Again, heroin use is one major issue, while unprotected sex is another. Education on this concern for heroin abusers is expansive but those who need it the most are often difficult to locate much less bring in to centers. Treatment programs are beginning to help with this.

Heroin: Treatment

- The most immediate problem for treatment providers of heroin abuse is detoxifying the patient with a minimum of discomfort and distress.
- After detoxification, of course, the problem of long-term drug dependence remains. The craving for the drug often persists and the abuser often feels they have little choice but to return to the drug-oriented environment where the temptations to satisfy the craving still exist. This led in the 1960's to approach treatment from a different perspective. Oral administration of the synthetic opiate **methadone** was essentially substituted for the injected heroin, which led to **methadone maintenance** programs around the country. Many operate today in NC; mobile centers are also being considered here as well.
- The concept concludes that if a legally, carefully controlled narcotic drug is available and administered to heroin abusers on a regular basis, the craving for heroin would be eliminated, the drug-taking style would no longer be needed, and they could now turn to more appropriate social behaviors, such as steady employment and a more stable family life.
- Methadone is slower acting and is more slowly metabolized, so withdrawal symptoms are less severe than heroin.
- Methadone's effects also last up to 24 hours and can be easily absorbed through an oral administration.
- Since methadone is a narcotic drug, it binds to the endorphin-sensitive receptors in the brain and prevents feelings of craving, yet its slow action avoids the "rush" of a heroin high.

Heroin: Treatment

- Individuals on Methadone Programs are often required to present to clinics on a daily basis for an oral dose (syrup or tablet); the dose is gradually increased to a “maintenance” level over a period of 4-6 weeks.
- The chances of a user turning away from illicit drug use are increased if the higher doses are made conditional upon a clean urinalysis (drug free).
- The general philosophy behind methadone maintenance is that heroin abuse is a metabolic disorder requiring a maintenance drug for the body, just like the diabetic requires a maintenance supply of insulin. In other words, the maintenance drug “normalizes” the drug abuser.
- Successful maintenance has also been improved by administering of a new synthetic opiate **LAMM** (levo-alpha-acetylmethadol) or **Orlamm**. The advantage is that the longer duration of this drug allows the user to receive the drug only 3 times per week and not every day.
- Another drug showing promise is the synthetic opiate **buprenorphine** (brand name **Buprenex**). Though taken daily, this drug does not induce physical signs of dependence and effectively suppresses the craving for heroin among abusers.
- The success rates among heroin users on methadone programs have been somewhat hopeful. In one study it was found that 71% of heroin abusers who stayed on a methadone maintenance program for at least 1 year stopped intravenous drug-taking thus lessening the risk of AIDS.
- In another study, drug-associated problems declined from 80% to between 17 and 28%, criminal behavior was reduced from over 20% to less than 10% and there was a slight increase in permanent employment.

Heroin: Treatment

- Problems associated with methadone programs include opposition to the “Harm Reduction” approach by some in society and the treatment field. It is also said it does little to increase the self-esteem of the abuser, even perpetuates the sense of dependency felt by some. It seems to be placing the needs of society (reducing crime, homelessness, unemployment, etc) over the esteem of the heroin abuser.
- Also, methadone maintenance does little to assist with the overall vulnerability toward drug abuse in general. Some (one study suggests 10-40%) on the programs turn to alcohol or other drugs (cocaine, methamphetamine, etc) as substitutions for narcotics.
- Another important point to consider is that methadone is sometimes diverted away from clinics and onto the streets for illicit use. Pain management clinics are also prescribing methadone for chronic pain, which is leading to misuse and illicit availability. The danger of overdose is always apparent with this drug.
- **Therapeutic Communities** are also popping up. This is a residential program (Phoenix House, Daytop Village) that allows for temporary residence for the abuser in a drug-free group setting. They would receive intensive counseling, typically from heroin abusers or former abusers of other drugs, who have successfully given up drugs.

[Heroin: Treatment]

- Another drug is currently being used in combination with detoxification, treatment, psychotherapy, and vocational rehabilitation. The drug, **Naltrexone**, is a long-term form of naloxone (a drug used in overdose cases to induce withdrawal). The brand name is **Revia**. This is what is known as antagonist drug, much like Antebuse for alcohol. It will nullify the effects of the taken opiate, and induce withdrawal for those physically dependent. This form of treatment is aptly named a multimodality program. They are designed to focus simultaneously on the multitude of needs facing the heroin abuser with the overall goal being successful reintegration into society.
- Highly successful adjuncts to treatment for the heroin abuser are 12-step group support programs such as **Narcotics Anonymous**.

(All Above from Levinthal)

[Bibliography]

The contents of this training was aided by valuable information (some of it verbatim) from the following text and website:

- **Drugs, Behavior, and Modern Society (2nd Edition).**
Charles F. Levinthal. Allyn and Bacon (1999).
- **National Institute on Drug Abuse. Research Report Series**
– Methamphetamine Abuse and Addiction.