

Drugs and Addiction

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Chapter 1

Introduction

This is an abstract of the subject of drug addiction. Of course this document does not cover all issues and is not very detailed but I hope to give broad view on the subject, covering various areas. I perhaps should define the term *drug* used in this document. My interpretation of this term differs from the common understanding: drugs are all substances that can cause either physical or psychological dependence. This of course includes alcohol, nicotine and caffeine, since they cause physical dependence (alcohol has even one of the worst withdrawal symptoms from all known drugs).

Chapter 2

Addiction

Addiction is a psychical and often also physical determined condition of dependence on a certain substance (*drug addiction*) or behavioral pattern (e.g. gambling). The addict feels the urge to take the substance or show the behavioral pattern. Addiction to behavior is always only psychical. Physical dependence exists, if the amount of the substance used to achieve the same effect is increasing (*tolerance*) and if stopping or reducing its use leads to withdrawal effects like nausea or pain. The symptoms vary depending on the substance and the degree of addiction. Psychical dependence exists if there is, even without withdrawal symptoms, a strong desire for the substance or behavior.

The addictive potential of a drug is often tested in laboratory researches with experimental animals. A drug that is used heavily by the animals is considered highly addictive. Examples are the most important abused drugs like opium, alcohol, cocaine and barbiturates. Other substances like marijuana and psychoactive medicaments seem to cause dependence when used by humans, though they did not show this effect in animal experiments.

Chapter 3

Drug effects

The effects of any drug depend on several factors:

- the amount taken at one time
- the user's past drug experience
- the manner in which the drug is taken
- the circumstances under which the drug is taken (the place, the user's psychological and emotional stability, the presence of other people, the concurrent use of other drugs, etc.).

Another common effect of use of all drugs that are injected (sharing of needles) is an increased risk of acquiring AIDS (acquired immune deficiency syndrome) and HIV infection (human immunodeficiency virus). Unsterile injection techniques can also cause abscesses, cellulitis, liver disease, and even brain damage. Among users with a long history of subcutaneous injection, tetanus is common. Pulmonary complications, including various types of pneumonia, may also result from the unhealthy lifestyle of the user.

Chapter 4

The various kinds of drugs

4.1 Alcohol

Drug class: *Sedative/Hypnotic*

Alcohol is often not thought of as a drug — largely because its use is common for both religious and social purposes in most parts of the world. It is a drug, however, and compulsive drinking in excess has become one of modern society's most serious problems.

Beer is fermented to contain about 5% alcohol by volume (or 3.5% in light beer). Most wine is fermented to have between 10% and 14% alcohol content; however, such fortified wines as sherry, port, and vermouth contain between 14% and 20%. Distilled spirits (whisky, vodka, rum, gin) are first fermented, then distilled to raise the alcohol content. The concentration of alcohol in spirits is about 40% by volume. Some liquors may be stronger. The effects of drinking do not depend on the type of alcoholic beverage — but rather on the amount of alcohol consumed on a specific occasion.

Alcohol is rapidly absorbed into the bloodstream from the small intestine, and less rapidly from the stomach and colon. In proportion to its concentration in the bloodstream, alcohol decreases activity in parts of the brain and spinal cord. The drinker's blood alcohol concentration depends on:

- the amount consumed in a given time
- the drinker's size, sex, body build, and metabolism
- the type and amount of food in the stomach.

Once the alcohol has passed into the blood, however, no food or beverage can retard or interfere with its effects. Fruit sugar, however, in some cases can shorten the duration of alcohol's effect by speeding up its elimination from the blood.

4.1.1 Effects

It is the amount of alcohol in the blood that causes the effects. In the following table, the left-hand column lists the number of volume-units of alcohol in thousand volume-units of blood (the German *Promille*). The right-hand column describes the usual effects of these amounts on normal people — those who have not developed a tolerance to alcohol.

Level	Effect
0.5	<i>Mild intoxication</i> Feeling of warmth, skin flushed; impaired judgment; decreased inhibitions
1.0	<i>Obvious intoxication in most people</i> Increased impairment of judgment, inhibition, attention and control; Some impairment of muscular performance; slowing of reflexes
1.5	<i>Obvious intoxication in all normal people</i> Staggering gait and other muscular incoordination; slurred speech; double vision; memory and comprehension loss
2.5	<i>Extreme intoxication or stupor</i> Reduced response to stimuli; inability to stand; vomiting; incontinence; sleepiness
3.5	<i>Coma</i> Unconsciousness; little response to stimuli; incontinence; low body temperature; poor respiration; fall in blood pressure; clammy skin
5.0	<i>Death likely</i>

Drinking heavily over a short period of time usually results in a “hangover” — headache, nausea, shakiness, and sometimes vomiting, beginning from 8 to 12 hours later. A hangover is due partly to poisoning by alcohol and other components of the drink, and partly to the body’s reaction to withdrawal from alcohol. Although there are dozens of home remedies suggested for hangovers, there is currently no known effective cure.

Combining alcohol with other drugs can make the effects of these other drugs much stronger and more dangerous. Many accidental deaths have occurred after people have used alcohol combined with other drugs. Cannabis, tranquilizers, barbiturates and other sleeping pills, or antihistamines (in cold, cough, and allergy remedies) should not be taken with alcohol. Even a small amount of alcohol with any of these drugs can seriously impair a person’s ability to drive a car, for example.

Long-term effects of alcohol appear after repeated use over a period of many months or years. The negative physical and psychological effects of chronic abuse are numerous; some are potentially life-threatening.

Some of these harmful consequences are primary — that is, they result directly from prolonged exposure to alcohol’s toxic effects (such as heart and liver disease or inflammation of the stomach).

Others are secondary; indirectly related to chronic alcohol abuse, they include loss of appetite, vitamin deficiencies, infections, and sexual impotence or menstrual irregularities. The risk of serious disease increases with the amount of alcohol consumed.

Early death rates are much higher for heavy drinkers than for light drinkers or abstainers, particularly from heart and liver disease, pneumonia, some types of cancer, acute alcohol poisoning, accident, homicide, and suicide. No precise limits of safe drinking can be recommended.

4.1.2 Tolerance and Dependence

People who drink on a regular basis become tolerant to many of the unpleasant effects of alcohol, and thus are able to drink more before suffering these effects. Yet even with increased consumption, many such drinkers do not appear intoxicated. Because they continue to work and socialize reasonably well, their deteriorating physical condition may go unrecognized by others until severe damage develops — or until they are hospitalized for other reasons and suddenly experience alcohol withdrawal symptoms.

Psychological dependence on alcohol may occur with regular use of even relatively moderate daily amounts. It may also occur in people who consume alcohol only under certain conditions, such as before and during social occasions. This form of dependence refers to a craving for alcohol's psychological effects, although not necessarily in amounts that produce serious intoxication. For psychologically dependent drinkers, the lack of alcohol tends to make them anxious and, in some cases, panicky.

Physical dependence occurs in consistently heavy drinkers. Since their bodies have adapted to the presence of alcohol, they suffer withdrawal symptoms if they suddenly stop drinking. Withdrawal symptoms range from jumpiness, sleeplessness, sweating, and poor appetite, to tremors (the “shakes”), convulsions, hallucinations and sometimes death.

4.1.3 Alcohol and Pregnancy

Pregnant women who drink risk having babies with fetal alcohol effects (known as fetal alcohol syndrome or FAS). The most serious of these effects include mental retardation, growth deficiency, head and facial deformities, joint and limb abnormalities, and heart defects. While it is known that the risk of bearing an FAS-afflicted child increases with the amount of alcohol consumed, a safe level of consumption has not been determined.

4.2 Tobacco

Drug class: *central nervous stimulant*

4.2.1 Tobacco Smoke Components

Tobacco smoke is made up of thousands of components, the main ones being *Nicotine*, *Tar*, and *Carbon Monoxide*. Nicotine is the addictive agent in tobacco, tar can cause cancers and bronchial disorders, and carbon monoxide contributes to heart disease.

Nicotine is a powerful mood-altering substance which reaches the brain quickly when you smoke a cigarette. Nicotine is also extremely toxic. A dose of about 30 mg can be fatal. Although an average cigarette contains 15-20 mg of nicotine, only about 0.1–1.0mg are absorbed by the smoker.

Tar is not a single ingredient; it is a dark sticky combination of hundreds of chemicals including poisons and cancer-causing substances. Standard tar yields of cigarettes vary from less than 1 mg to 18 mg per cigarette. As with nicotine, the tar yield of a cigarette can be higher depending on how a cigarette is smoked.

Carbon monoxide (chemical: *CO*) the poisonous emission from automobile engines is also formed when tobacco is burned. *CO* in smoke replaces the oxygen in red blood cells. While nicotine causes the heart to work harder, *CO* deprives it of the extra oxygen this work demands.

Heart and circulatory disease, lung and other cancers, and emphysema and chronic bronchitis have been linked to some of the substances in cigarette smoke.

4.2.2 Women and Tobacco

Tobacco use during pregnancy increases the risk of such complications as stillbirths, low birth weights, premature delivery, miscarriage, and *sudden infant death syndrome*. Women who smoke may also experience reduced fertility, increased menstrual disorders, earlier onset of menopause, and an increased risk of cervical cancer.

Women who smoke and use birth control pills are especially vulnerable, particularly after age 30. They are 39 times more likely to suffer from stroke than non-smokers who do not use the pill, and are at higher risk of contacting other circulatory diseases as well.

4.2.3 Nicotine Addiction

Tobacco use can lead to physical and psychological dependence on nicotine, particularly in cigarette smokers. The United States Surgeon General's 1988 report states that "cigarettes and other forms of tobacco are just as addicting as heroin and cocaine...."

People who are physically dependent on tobacco suffer a withdrawal reaction when they stop using it. Some signs of withdrawal are: irritability, anxiety, headaches, sleep disturbances (insomnia or drowsiness), difficulty concentrating, decreased heart rate and increased appetite, and a craving for nicotine. These symptoms can last from several days to several weeks. However, desire for a cigarette and relapse to smoking can occur months after quitting, indicating that, as with other drug use, factors in addition to physical dependence play

a role in nicotine addiction. Environmental events or emotional states may become conditioned signals for cigarette use.

4.2.4 Quitting Smoking

Although the majority of smokers want to reduce or stop smoking, attempts to do so often fail. The U.S. Surgeon General's 1988 report states that "...at least 60% of tobacco smokers have tried to quit at some time in their lives." Quitting is possible, however: the majority of people who have ever smoked give up cigarettes later in life. Although about 20% of would-be quitters stop on their first attempt, most people "give up" several times before finally stopping for good.

People who quit generally achieve the same health levels as non-smokers after a few years, especially if they stop while they are young. Risk of heart disease drops immediately; risk of lung cancer declines more gradually. Some lung disease may not be completely reversible, but even older lifetime smokers can benefit significantly from quitting.

There is no simple "cure" for smoking. It helps to find a personal reason. Cutting down or switching to ultra-low-yield brands instead of quitting may reduce exposure to smoke products, but many people just change the way they smoke - they take more or longer puffs — to get the same effect. Withdrawal symptoms subside more quickly for smokers who quit all at once than for those who gradually cut down.

Most quitters stop on their own — sometimes with the help of books, pamphlets, guides, or videos. Some prefer group support or professional counselling from a doctor, a smoking clinic, or a local health agency. No single method works for everyone; several different approaches may have to be tried.

Nicorette, a prescription gum containing nicotine, has helped some people deal with withdrawal symptoms, particularly those who are very dependent on nicotine. Other non-prescription anti-smoking products have not been shown scientifically to be effective.

Many smokers worry about weight gain if they stop smoking. Studies show that many of those who quit gain weight, but the gain is usually only a few kilograms, and can be minimized by exercising and eating low-fat foods.

4.2.5 Who Smokes?

4.2.6 Tobacco and the Law

In Austria, the purchase or possession of tobacco by anyone younger than 16 years is forbidden. The advertising of tobacco products is restricted at certain places, for instance on places where sport events take place. Smoking in the public is generally allowed, but there are several exceptions, like in public buildings and non-smoking sections in buses, trains, airplanes or restaurants, but the "tobacco laws" are not supervised very strictly.

4.3 Caffeine

Drug class: *Central nervous stimulant*

Caffeine is the world's most popular drug. The white, bitter-tasting, crystalline substance was first isolated from coffee in 1820. Both words, caffeine and coffee, are derived from the Arabic word qahweh (pronounced "kahveh" in Turkish). The origins of the words reflect the spread of the beverage into Europe via Arabia and Turkey from north-east Africa, where coffee trees were cultivated in the 6th century. Coffee began to be popular in Europe in the 17th century. By the 18th century plantations had been established in Indonesia and the West Indies.

The caffeine content of coffee beans varies according to the species of the coffee plant. The beans contain from about 1.1% (Central and South America beans) to about 2.2% (Indonesia and Africa beans) caffeine. Caffeine also occurs in cacao pods and hence in cocoa and chocolate products; in cola nuts, used in the preparation of cola drinks; and in the ilex plant, from whose leaves the popular South American beverage yerba mate is prepared.

Caffeine is also found in tea. It was first isolated from tea leaves in 1827 and named "theine" because it was believed to be a distinctly different compound from the caffeine in coffee. Tea leaves contain about 3.5% caffeine, but a cup of tea usually contains less caffeine than a cup of coffee because much less tea than coffee is used during preparation.

Cola drinks contain about 30 mg caffeine per standard 250 ml serving, with some 5% of the caffeine being a component of cola nuts and most of the remainder being added in the form of a by-product of the decaffeination of coffee and tea. Caffeine-containing soft drinks account for more than 65% of soft drink consumption. A cup of hot chocolate contains about 4 mg caffeine, and a 50-gram chocolate bar between 5 and 60 mg, increasing with the quality of the chocolate. Caffeine is an ingredient of certain headache pills (30-65 mg). It is the main ingredient of non-prescription "stay-awake" pills (100-200 mg).

4.3.1 Effects

Caffeine taken in beverage form begins to reach all tissues of the body within five minutes. Half of a given dose of caffeine is metabolized in about four hours more rapidly in smokers and less rapidly in newborn infants, in women in late pregnancy, and in sufferers from liver disease. Normally, almost all ingested caffeine is metabolized. Less than 3% appears unchanged in urine, and there is no day-to-day accumulation of the drug in the body.

Ingestion of the amount of caffeine in one or two cups of coffee (75–150 mg) causes many mild physiological effects. General metabolism increases — expressed as an increase in activity or raised temperature, or both. The rate of breathing increases, as does urination and the levels of fatty acids in the blood and of gastric acid in the stomach. (However, at least one other component of coffee also increases gastric acid secretion. Therefore ulcer sufferers may not achieve relief by switching to decaffeinated coffee.) Caffeine use may increase blood pressure.

Caffeine stimulates the brain and behavior. Use of 75–150 mg of caffeine elevates neural activity in many parts of the brain, postpones fatigue, and enhances performance at simple intellectual tasks and at physical work that involves endurance but not fine motor coordination. (Caffeine-caused tremor can reduce hand steadiness.)

Caffeine's effects on complex intellectual tasks and on mood do not lend themselves to a simple summary. The effects depend on the personality of the user, on the immediate environment, on the user's knowing whether caffeine has been taken, and even on the time of day.

The effects of caffeine on sleep are clear-cut: taken before bedtime, it usually delays sleep onset, shortens overall sleep time, and reduces the "depth" of sleep. After using caffeine, sleepers are more easily aroused, move more during sleep, and report a reduction in the quality of sleep. The effects of caffeine on dreaming are less clear.

Larger doses of caffeine, especially when given to non-users, can produce headache, jitteriness, abnormally rapid heartbeat (tachycardia), convulsions, and even delirium. Near-fatal doses cause a crisis resembling the state of a diabetic without insulin, including high levels of blood sugar and the appearance of acetone-like substances in urine. The lowest known dose fatal to an adult has been 3,200 mg - administered intravenously by accident. The fatal oral dose is in excess of 5,000 mg — the equivalent of 40 strong cups of coffee taken in a very short space of time.

4.4 Opiates

The opioids include both natural opiates — that is, drugs from the opium poppy — and opiate-related synthetic drugs, such as meperidine and methadone.

The opiates are found in a gummy substance extracted from the seed pod of the Asian poppy, *Papaver somniferum*. Opium is produced from this substance, and codeine and morphine are derived from opium. Other drugs, such as heroin, are processed from morphine or codeine.

Opiates have been used both medically and non-medically for centuries. A tincture of opium called laudanum has been widely used since the 16th century as a remedy for "nerves" or to stop coughing and diarrhea.

By the early 19th century, morphine had been extracted in a pure form suitable for solution. With the introduction of the hypodermic needle in the mid-19th century, injection of the solution became the common method of administration.

Of the 20 alkaloids contained in opium, only codeine and morphine are still in widespread clinical use today. In this century, many synthetic drugs have been developed with essentially the same effects as the natural opium alkaloids.

4.4.1 Effects

Opiate effects depend on the substance used, but there are some common patterns:

Short-term effects appear soon after a single dose and disappear in a few hours or days. Opioids briefly stimulate the higher centers of the brain but then depress activity of the central nervous system. Immediately after injection of an opioid into a vein, the user feels a surge of pleasure or a “rush”. This gives way to a state of gratification; hunger, pain, and sexual urges rarely intrude.

The dose required to produce this effect may at first cause restlessness, nausea, and vomiting. With moderately high doses, however, the body feels warm, the extremities heavy, and the mouth dry. Soon, the user goes “on the nod”, an alternately wakeful and drowsy state during which the world is forgotten.

As the dose is increased, breathing becomes gradually slower. With very large doses, the user cannot be roused; the pupils contract to pinpoints; the skin is cold, moist, and bluish; and profound respiratory depression resulting in death may occur.

Overdose is a particular risk on the street, where the amount of drug contained in a “hit” cannot be accurately gauged. In a treatment setting, the effects of a usual dose of morphine last three to four hours. Although pain may still be felt, the reaction to it is reduced, and the patient feels content because of the emotional detachment induced by the drug.

Long-term effects appear after repeated use over a long period. Chronic opiate users may develop endocarditis, an infection of the heart lining and valves as a result of unsterile injection techniques, and also suffer from the depressant effect of opiates on respiration.

4.4.2 Opium

Opium is basically the dried sap from the opium poppy. It appears either as dark brown chunks or in powder form. Opium is mostly smoked or eaten, sometimes also injected. For oral use and injection, an opium solution is used.

4.4.3 Morphine

Morphine is chemically derived from opium. It appears either as brown powder, as crystal-clear liquid, mostly filled into ampoules or as morphine-sulfate in grey to beige tablets.

Morphine is used in medicine as strong pain-killer mostly only for persons who are facing death — in this case the addictive potential of morphine does not matter.

4.4.4 Heroin

Heroin is a half-synthetic drug that is derived from morphine. It was first produced in 1874. It was used in medicine as strong pain-killer, but then forbidden due to its high addictive potential.

The quality of heroin sold on the illegal market varies a lot. The gram of “heroin” normally contains 25–50 % pure heroin. The percentage is much higher in the so-called “heroin no. 4”. Injected undiluted it is absolutely lethal.

The heroin is mostly available on the street market as a brown powder and is referred to “Brown Sugar” or “Sugar”. Heroin no. 4 is also called “China White”.

Heroin is mostly injected intravenous, but it can also be smoked or sniffed. Recently, smoking heroin has become popular with younger drug users, making it a gateway drug. This is fatal because of the extreme addictive potential of heroin. The amount of heroin needed for inhalation is generally greater than for injecting.

4.5 Hallucinogens

The term “hallucinogen” describes any drug that radically changes a person’s mental state by distorting the perception of reality to the point where, at high doses, hallucinations occur — that is, one sees or hears things that do not, in reality, exist. These drugs have also been labelled illusionogenic, psychotomimetic, psychedelic, and mind-expanding depending on whether scientists or users are talking about them.

Hallucinogens include a wide variety of substances, which are different from each other in structure and range from wholly synthetic products to natural plant extracts.

Mescaline can be manufactured synthetically or extracted from the peyote cactus. Similarly, psilocybin can be chemically produced or extracted from certain mushrooms.

Other hallucinogens are found in such naturally occurring materials as morning glory seeds, jimson weed, nutmeg, and a variety of mushrooms. Cannabis (see section 4.5.4), often classified as a hallucinogen, is also from a plant source.

Drugs as DMT, LSD (see section 4.5.3), MDA, PCP, PMA, STP (DOM), and TMA are synthetic chemicals manufactured in illegal “underground” laboratories specifically for the illicit drug market.

Other drugs as amphetamines and alcohol, although not usually classified as hallucinogens, and especially cannabis can surprise the user by producing hallucinations and related effects when taken in very large doses and in certain circumstances.

4.5.1 Effects

The effects of any hallucinogen can differ significantly — they range from causing ecstasy to terror. In low doses, changes of mood and perception are common, while hallucinations most times require high doses.

4.5.2 Tolerance and Dependence

Regular use of such hallucinogens as LSD, mescaline, and psilocybin induce tolerance within a few days — little or no effects are experienced even with

high doses. Normal sensitivity is usually restored after abstaining for several consecutive days.

Chronic users may also become psychologically dependent on hallucinogens, but they do not appear to cause physical dependence, for withdrawal reactions have not been observed, even after long-term use.

4.5.3 LSD

LSD, commonly called “acid”, is the most powerful known hallucinogen. It was used especially in the 60s and 70s in order to gain “mind-expansion”. Although it is derived from a fungus that grows on rye and other grains, LSD is semi-synthetic. It is chemically manufactured in illicit laboratories, except for a small amount which is produced legally for research.

Even in very minute doses (for example, 50 to 100 micrograms — a microgram is 1/1000 of a milligram), LSD can significantly alter one’s perceptions to the point of hallucination.

Of the group of hallucinogens, however, LSD is by far the most potent; it is approximately 100 times stronger than psilocybin and 4,000 times stronger than mescaline.

Pure LSD is a white, odorless crystalline powder that is soluble in water. Because an effective dose of the pure drug is almost invisible, it is mixed with other substances, such as sugar, and packaged in capsules, tablets, or solutions, or spotted on to gelatin sheets or pieces of blotting paper.

LSD is usually taken orally, but is sometimes inhaled or injected.

Effects

The general drug effect factors (see section 3) are especially important with LSD. In fact, the effects of LSD on any user, or even on the same user at different times, are difficult to predict.

Short-term effects appear soon after a single dose and disappear within a few hours or days. Appearing first are physical effects including: numbness; muscle weakness and trembling; rapid reflexes; increased blood pressure, heart rate, and temperature; impaired motor skills and coordination; dilated pupils; nausea; and, occasionally, seizures.

Dramatic changes in perception, thought, and mood occur shortly after the physical effects. These may include:

- vivid, usually visual, “pseudo-hallucinations” that the user is aware are not real
- distorted perceptions of: time (minutes seem like hours); distance (hazardous if operating motor vehicles or standing near balcony edges); gravity (sensations of floating or being pressed down); the space between oneself and one’s environment (for some, a feeling of oneness with the universe, for others, a feeling of terror)

- synesthesia: fusion of the senses (music is “seen”, colors “heard”).
- diminished control over thought processes, resulting in recent or long-forgotten memories resurfacing and blending with current experience, or in insignificant thoughts or objects taking on deep meaning
- feelings of a mystical, religious, or cosmic nature (generally the most desired effect).

But many users experience unpleasant reactions to LSD. Fear, anxiety, and depression may occur, even with experienced users who have had no prior adverse reactions. Calling these reactions “bad trips”, users feel that they are losing their identity, disintegrating into nothingness, and that there is no reality.

Although tolerance is developed, no withdrawal syndrome is apparent when the use is discontinued.

4.5.4 Cannabis

Drug class: *hallucinogen*

The plant *Cannabis sativa* is the source of both marijuana and hashish. The active ingredient is THC (tetrahydrocannabinol). The leaves, flowers and twigs of the plant are crushed to produce marijuana (THC concentration: 0.25–8 %); its concentrated resin is hashish (THC: 1–12 %). Both drugs are usually smoked in a cigarette (“joint”) or pipe (also use of water-pipes — “bongs” — is common), pure or mixed with tobacco. The drug can also be used orally (as marijuana-tea or hashish-cookies, for example) and is sometimes injected. The amount of drug used at a time varies a lot, but from 1/4 to 1 gram in a joint are common.

On the street, cannabis has many names: *hash, grass, shit, hemp, bhang, weed, Mary Jane, tea, pot, charas, ganja, khif* and many more.

Effects and Dangers

Main cannabis effects include: mild euphoria, subjective contentment, dizziness, change of perception, restlessness, apathy (but also sometimes irritability), change in blood pressure and heartbeat frequency, widened pupils, sleepiness. Higher doses may lead to time dilatation and hallucinations.

The cannabis high may differ a lot, depending on personality structure, psychical condition, environment, cannabis experience, way of consumption and amount of THC consumed. Even with the same person — depending on the environment (“set”) — different effects are common.

Most physical dangers of cannabis consume are the same as of tobacco, when the cannabis is smoked. Oral use eliminates those effects (e.g. lung cancer). No physical dependence is established, although tolerance is developed if frequent use of large doses occurs.

As other dangers psychological dependence, change of personality and decline are mentioned. The psychological and physiological dangers of cannabis are

a very controversial topic and it can be assumed that cannabis-psychosis and flash-back-psychosis happen only with high doses and persons with respective predispositions. For psychical ill persons cannabis can nevertheless impose a special endangering.

The acute toxicity of cannabis is very low. There are no documented cases of lethal cannabis intoxications with humans.

4.6 Cocaine

Drug class: *central nervous system stimulant*

Cocaine is a powerful central nervous system (CNS) stimulant that heightens alertness, inhibits appetite and the need for sleep, and provides intense feelings of pleasure. It is prepared from the leaf of the *Erythroxylon coca* bush, which grows primarily in Peru and Bolivia.

Pure cocaine was first extracted and identified by the German chemist Albert Niemann in the mid-19th century, and was introduced as a tonic in patent medicines to treat a wide variety of real or imagined illnesses. Later, it was used as a local anesthetic for eye, ear, and throat surgery and continues today to have limited employment in surgery. Currently, it has no other clinical application, having been largely replaced by synthetic local anesthetics such as lidocaine.

Because of its potent euphoric and energizing effects, many people in the late 19th century took cocaine, even though some physicians recognized that users quickly became dependent. In the 1880s, the psychiatrist Sigmund Freud created a sensation with a series of papers praising cocaine's potential to cure depression, alcoholism, and morphine addiction.

Skepticism soon replaced this excitement, however, when documented reports of fatal cocaine poisoning, alarming mental disturbances, and cocaine addiction began to circulate.

At the beginning of the 20th century cocaine use was restricted in most countries. The 1920s and '30s saw a marked decline in its use, especially after amphetamines became easily available. Cocaine's return to popularity, beginning in the late 1960s, coincided with the decreased use of amphetamines.

4.6.1 Appearance

Cocaine is generally sold on the street as a hydrochloride salt - a fine, white crystalline powder known as coke, C, snow, flake, or blow. Street dealers dilute it with inert (non-psychoactive) but similar-looking substances such as cornstarch, talcum powder, and sugar, or with active drugs such as procaine and benzocaine (used as local anesthetics), or other CNS stimulants such as amphetamines. Nevertheless, illicit cocaine has actually become purer over the years; in 1988 its purity averaged about 75 %.

Cocaine in powder form is usually "snorted" into the nostrils, although it may also be rubbed onto the mucous lining of the mouth, rectum, or vagina. To experience cocaine's effects more quickly, and to heighten their intensity, users

sometimes inject it.

Cocaine hydrochloride can be chemically altered to remove other substances. The process, called “freebasing”, is potentially dangerous because the solvents used are highly flammable. The pure form of cocaine that results (“free base”) is smoked rather than snorted. The drug commonly called “crack” is a crude form of free base that has become popular in recent years.

4.6.2 Effects

Cocaine’s short-term effects appear soon after a single dose and disappear within a few minutes or hours. Taken in small amounts (up to 100 mg), cocaine usually makes the user feel euphoric, energetic, talkative, and mentally alert — especially to the sensations of sight, sound, and touch. It can also temporarily dispel the need for food and sleep. Paradoxically, it can make some people feel contemplative, anxious, or even panic-stricken. Some people find that the drug helps them perform simple physical and intellectual tasks more quickly; others experience just the opposite effect.

Physical symptoms include accelerated heartbeat and breathing, and higher blood pressure and body temperature.

Large amounts (several hundred milligrams or more) intensify users’ “high”, but may also lead to bizarre, erratic, and violent behavior. These users may experience tremors, vertigo, muscle twitches, paranoia, or, with repeated doses, a toxic reaction closely resembling amphetamine poisoning.

Physical symptoms may include chest pain, nausea, blurred vision, fever, muscle spasms, convulsions, and coma. Death from a cocaine overdose can occur from convulsions, heart failure, or the depression of vital brain centers controlling respiration.

With repeated administration over time, users experience the drug’s long-term effects. Euphoria is gradually displaced by restlessness, extreme excitability, insomnia, and paranoia - and eventually hallucinations and delusions. These conditions, clinically identical to amphetamine psychosis and very similar to paranoid schizophrenia, disappear rapidly in most cases after cocaine use is ended.

While many of the physical effects of heavy continuous use are essentially the same as those of short-term use, the heavy user may also suffer from mood swings, paranoia, loss of interest in sex, weight loss, and insomnia.

Chronic cocaine snorting often causes stuffiness, runny nose, eczema around the nostrils, and a perforated nasal septum. Severe respiratory tract irritation has been noted in some heavy users of cocaine free base.

4.6.3 Tolerance and Dependence

Tolerance to any drug exists when higher doses are necessary to achieve the same effects once reached with lower doses. But scientists have not observed tolerance to cocaine’s stimulant effect: users may keep taking the original amount over extended periods and still experience the same euphoria. Yet some users

frequently increase their dose to intensify and prolong the effects. Amounts up to 10 g have been reported.

Some users, however, report that they become more sensitive to cocaine's anesthetic and convulsant effects even without increasing the amount. This theory of increased sensitivity has been put forward to explain some deaths that have occurred after apparently low doses.

Among heavy cocaine users, an intense psychological dependence can occur; they suffer severe depression if the drug is unavailable, which lifts only when they take it again.

Experiments with animals suggest that cocaine is perhaps the most powerful drug of all in producing psychological dependence. Rats and monkeys made dependent on cocaine will always strive hard to get more.

At present, researchers do not agree on what constitutes physical dependence on cocaine. When regular heavy users stop taking the drug, however, they experience what they term the "crash" shortly afterwards.

Overall, during abstinence, many users complain of sleep and eating disorders, depression, and anxiety, and the craving for cocaine often compels them to take it again. Treatment of the dependent cocaine user is therefore difficult, and the relapse rate is high. Nevertheless, some heavy users have been able to quit on their own.

4.7 Inhalants

Drug class: *Sedative hypnotics, Anesthetics*

In the class of inhalants are substances normally not considered as drugs, such as glue, solvents and aerosols, such as cleaning fluids. Most such substances sniffed for their psychological effects act to depress the central nervous system.

Due to the large availability and the low price of inhalants its very difficult to strictly control them.

Solvent sniffing is frequently a group activity, with each person usually inhaling from his or her own bag or saturated cloth. Most commonly, the users are young — between 8 and 16 years old — although some heavy users are in their late teens or older.

4.7.1 Effects

Short time effects appear soon after inhalation and last for a few minutes to a few hours. After inhaling there is an euphoric feeling, characterized by light-headedness, exhilaration and vivid fantasies. Nausea, drooling, sneezing and coughing, muscular incoordination, slow reflexes and sensitivity to light may also occur. Deep, repeated inhalation over short periods may result in a loss of control, culminating in hallucinations or unconsciousness. Solvents abuse has also been connected to aggressive and antisocial behavior.

Long term effects include physical effects like thirst, weight loss, nosebleeds, bloodshot eyes and sores on the nose and mouth. Solvents can impair liver

and kidney function or interfere with the blood cells; some substances can also cause permanent damage. Behavioral symptoms in regular users include mental confusion, depression irritability, hostility and paranoia. Signs of brain damage have also been noted.

4.7.2 Tolerance and Dependence

Regular inhalant use induces tolerance. Psychological dependence is fairly common. Physical dependence may occur with chronic users; some of them, but by no means all, suffer chills, hallucinations, headaches, pain or delirium tremens (DTs — the “shakes”). More often solvent intoxication is followed by a short period of excitement.

Chapter 5

Drugs and Politics

5.1 Drug Myths

Myths are rationally not provable statements, that claim to be true, but do not pursue scientific explanation — or, more colloquially, unreflected convictions, similar to prejudices. They lead to everyday-theories, wrong assumptions, suppressions, generalizations, systematic misperception, half-truths and stereotypes. Myths prevent rational decision processes, encourage emotionality in discussion, favor undesirable trends and consequently bar the view on necessary corrections and therefore harm as well the affected individuals as the society as a whole.

To understand the discussion on drugs in general, and especially in politics, it is important to know and understand some of the drug myths and “theories”, since they are often the fundament of argumentation.

5.1.1 Why people take drugs

There are several “theories” (or better: speculations, since they are not scientifically based) about why people start taking drugs.

The “Weak Personality” Theory: Some people believe that people take drugs only because they have a weak personality and are inadequate in some way. This theory says that drug-takers take drugs in order to escape from their problems.

The “Evil Pusher” Theory: This theory says that people take illegal drugs, because a “pusher” tricks them into trying drugs so that he or she can make them addicted and then sell them drugs for a high profit. This theory has one very big problem: what about legal drugs, as alcohol and nicotine — the most profiting person, or, in this case, institution, is the state (tobacco and alcohol taxes). Should we consider the state as “evil pusher”?

The “Pleasure” Theory: This theory suggests that people take drugs because they like their effects.

The “Rebel” Theory: Other people believe that young people take drugs in order to rebel against their parents and the rest of society. This theory says that people take illegal drugs just because it is not legal.

The “Curiosity” Theory: This theory suggests that some people are just curious about the effects of drugs and want to know for themselves how it is like.

The “Doesn’t Know Any Better” Theory: Some people believe that only stupid people and people who do not understand the facts take drugs.

The “Fashion” Theory: Some people believe that people take a drug because it is fashion to take it. (If there are fashions in clothes and music, then there can be fashions in drugs, too).

The “In-with-the-crowd” Theory: Another theory says that people take a drug if they want to belong to the crowd. Some people do not like being “different” and like to take part in what other people are doing.

The “Because-it-is-offered” Theory: Do people really have to have a strong reason to take a drug? Does everybody who drinks alcohol or smokes cigarettes really have a reason? Sometimes people do something just because they get the opportunity — so they might take a legal or illegal drug just because it is offered to them, even though they were not looking for it.

Some of these “theories” may be right for some drug-takers, but none of them gives the whole story. And quite often the reason people give is a reason they thought of after they took the drug, not what they were thinking at the time. The reason they give may also depend on who they are talking to.

5.1.2 Some Important Myths

In the following the most important myths and their replies (translated and abbreviated from [2]):

Illegal drugs lead because of their special effects inevitably to the vicious circle: addiction, serious illness, physical decay — all without the faintest chance of recovery: The vicious circle includes not only the drugs, but also AIDS and criminality. Not the substance-related effect of the drug, but how one deals with the drug and how the society reacts, essentially causes the drug-complications. All illegal drugs can be consumed without the development of dependence. Ritualized, that is in social customs integrated and therefore socially tolerated

consume, precludes additional drug use. Moreover “cure” is possible by self-healing and is observed in about a third of the addicts.

The drug-problem is only a effect of life- and youth-hostile society and environment: Social factors play a major, but not the exclusive part in the development of drug addiction. This myth, the reply of mostly “left” political organizations to the substance-related drug effects, blocks political changes as well as other myths.

Illegal drugs are more dangerous than legal ones: The health hazard and the economic damage are with consume of tobacco and alcohol much larger than with illegal drugs.

The criminal law, especially high penalties, prevent or reduce drug-taking: Adolescents orient by their social environment, not from legal prohibition. A preventive effect of high penalties would affect only, if at all, soberly calculating offenders, which consider first of all if they can get caught, not how high the penalty is.

Less repression leads — as a result of the rising availability of illegal drugs — to an increase in consume and the number of consumers: Not only the availability of drugs, but also a complex bundle of other factors favors the consume of illegal drugs. The result of liberalizing or releasing illegal drugs can not be predicted scientifically. Nevertheless there is limited experience from the Netherlands, which of course cannot be simply applied to other countries, where the consume of cannabis did not increase after legalization.

The professional dealer belongs to a Mafia-like organized trade: “Dealers” are mainly regular users and addicts who deal to finance their consume. Adolescents get their first drugs mostly from friends. Furthermore there is much evidence that the wholesale drug trade is not organized monopolistic, but decentral, flexible and networked.

The public authorities (e.g. police) “need” the small drug dealers to investigate the drugs barons: The constitutionally questionable methods of informers, agents provocateurs and hidden investigators obviously do not lead to the top of the drug trade. These methods are often associated with massive infringements of personal rights and involve the danger of provoking new crimes instead of preventing them.

5.2 Do we have to live with drugs?

This question arises inevitably when talking about drug politics, since the most politicians think the best solution is a drug-free society. So the above question should be rephrased to be exact: *Can illegal drugs be entirely removed from society?* This question cannot be answered straightforward, although the fact that about 90% [2] of all known societies have some kind of drug use or abuse seems to point out that societies need consume of drugs in some way.

To live with drugs is often misinterpreted as to live with drug-problems. Drug taking considered on its own does not have to be associated with problems, as in ancient cultures. There has been found no way to

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