

The information below was extracted from the publication "What Works: Workplaces Without Drugs," U.S. Department of Labor, 1991.

### **Alcohol**

Alcohol consumption causes a number of marked changes in behavior. Even low doses significantly impair the judgment and coordination required to drive a car safely, increasing the likelihood of an accident. Low to moderate doses of alcohol also increase the incidence of a variety of aggressive acts, including spouse and child abuse. Moderate to high doses of alcohol severely alter a person's ability to learn and remember information. Very high doses, or low doses combined with other depressants of the central nervous system, cause respiratory depression and death.

Repeated use of alcohol can lead to dependence. Sudden cessation of alcohol intake is likely to produce withdrawal symptoms, including severe anxiety, tremors, hallucinations and convulsions. Alcohol withdrawal can be life threatening. Long-term consumption of large quantities of alcohol, particularly when combined with poor nutrition, may permanently damage vital organs such as the brain and liver.

Mothers who drink while pregnant may give birth to infants with fetal alcohol syndrome. These infants have irreversible physical abnormalities and mental retardation. In addition, research indicates that children of alcoholic parents are at greater risk than other youngsters of becoming alcoholics.

### **Anabolic Steroids**

Anabolic steroids are powerful compounds closely related to the male sex hormone testosterone. Developed in the 1930s, steroids may be taken orally or injected. Current legitimate medical uses are limited to certain kinds of anemia, severe burns and some types of breast cancer.

When combined with a program of muscle-building exercise and diet, steroids may contribute to increases in body weight and muscular strength. Athletes have used steroids since the 1950s, hoping to enhance performance. Today, many young people use steroids to accelerate physical development.

Steroid users may develop more than 70 side effects, ranging in severity from liver cancer and sterility to acne. Psychological effects include very aggressive behavior, known as "roid rage," and depression. While some side effects appear quickly, others, such as heart attacks and strokes, may not show up for years.

Signs of steroid use include quick weight and muscle gains; behavioral changes, particularly increased aggressiveness and combativeness; jaundice; purple or red spots on the body; swelling of feet or lower legs; trembling; darkening of the skin; and persistent, unpleasant breath odor.

### **Cannabis**

All forms of cannabis have negative physical and mental effects. Physical effects of cannabis include increase in heart rate, bloodshot eyes, dry mouth and throat, and hunger. Smoking marijuana is damaging to the lungs and respiratory system. The tar in marijuana smoke is carcinogenic.

Use of cannabis may impair short-term memory and comprehension, alter sense of time, and reduce ability to perform tasks requiring concentration and coordination, such as driving a car. Knowledge retention may be lower when information is given while a person is "high." Motivation and cognition are altered, making the acquisition of new information difficult. Marijuana can also produce paranoia and psychosis. Long-term users may develop psychological dependence. Marijuana smoke contains more cancer-causing agents than tobacco smoke.

**Cocaine**

Cocaine stimulates the central nervous system, and long term use can lead to psychological dependence. Its immediate effects include dilated pupils, elevated blood pressure and body temperature, and increased heart rate. Chronic use can cause ulceration of the mucous membrane in the nose. Injecting cocaine with unsterile equipment can transmit AIDS, hepatitis and other infections. Preparation of freebase, which involves the use of highly volatile solvents, can result in fire or explosion.

Crack or freebase rock, a concentrated form of cocaine, is extremely potent. Its effects are felt within 10 seconds of administration. The drug produces the same physical effects as cocaine, as well as insomnia, loss of appetite, tactile hallucination, paranoia and seizures. Cocaine use may lead to death through disruption of the brain's control of heart and respiration.

**Depressants**

The effects of depressants are similar to those of alcohol in many ways. Small amounts can produce calmness and relaxed muscles, but larger doses can cause slurred speech, staggering gait, and altered perception. Very large doses can cause respiratory depression, coma, and death. The combination of depressants and alcohol can increase the effects of the drugs and multiply the risks.

The use of depressants can cause both physical and psychological dependence. Regular use may result in tolerance to the drug, leading the user to increase the quantity consumed. When regular users stop taking depressant drugs, they may develop withdrawal symptoms ranging from restlessness, insomnia, and anxiety to convulsions and death.

Babies born to women who abuse depressants during pregnancy may be physically dependant on the drugs and show withdrawal symptoms shortly after birth. These children often have birth defects and behavioral problems.

**Designer Drugs**

Illegal drugs are defined in terms of their chemical formulas. To circumvent these legal restrictions, underground chemists modify the molecular structure of certain illegal drugs to produce analogues known as designer drugs. These drugs can be several times stronger than the drugs they imitate. Many can cause severe neurochemical damage to the brain.

The narcotic analogues can cause uncontrollable tremors, drooling, impaired speech, paralysis, and irreversible brain damage. Analogues of amphetamines and methamphetamines cause nausea, blurred vision, chills, or perspiration and faintness. Psychological effects include anxiety, depression, and paranoia. As little as one dose can cause brain damage. The analogues of phencyclidine cause illusions, hallucinations, and impaired perception.

**Hallucinogens**

Phencyclidine (PCP) interrupts the function of the neocortex, the section of the brain that controls the intellect and keeps instincts in check. Because the drug blocks pain receptors, violent PCP episodes may result in self-inflicted injuries. PCP often causes distance and space estrangement, lack of muscular coordination, and dulled senses. Time and body movement are slowed, and speech is blocked and incoherent.

Chronic users of PCP report memory and speech difficulties. Some of these effects may last a year following prolonged daily use. Mood disorders such as depression, anxiety, and violent behavior also occur. Long-term

chronic users may become paranoid and violent and experience hallucinations. Large doses may produce convulsions, coma, or heart and lung failure.

Lysergic acid (LSD), mescaline, and psilocybin cause illusions and hallucinations. Physical effects may include dilated pupils, elevated body temperature, increased heart rate and blood pressure, loss of appetite, sleeplessness, and tremors. Sensations and feelings may change rapidly. It is common to have a bad psychological reaction to LSD, mescaline, and psilocybin. The user may experience panic, confusion, suspicion, and anxiety. Delayed effects, or flashbacks, can occur even after use has ceased.

### **Inhalants**

A variety of psychoactive substances have been inhaled as gases or volatile liquids. Many popular commercial preparations such as paint thinners and cleaning fluids are mixtures of volatile substances making it difficult to be specific about their various effects.

Immediate negative effects of inhalants may include nausea, sneezing, coughing, nose bleeds, fatigue, lack of coordination, and loss of appetite. Solvents and aerosol sprays may also decrease the heart and respiratory rates and impair judgment. Amyl and butyl nitrate cause rapid pulse, headaches, and involuntary passing of urine and feces. Long-term use may result in hepatitis or brain damage, weight loss, fatigue, electrolyte imbalance, and muscle weakness. Repeated sniffing of concentrated vapors over time can lead to permanent damage of the nervous system.

### **Narcotics**

Narcotics initially produce a feeling of euphoria followed by drowsiness, nausea, and vomiting. Users may experience constricted pupils, watery eyes, and itching. An overdose may produce slow and shallow breathing, clammy skin, convulsions, coma, and death.

Tolerance to narcotics develops rapidly and dependence is likely. The use of unsterilized syringes may result in transmission of diseases such as AIDS, endocarditic, and hepatitis. Addiction in pregnant women can lead to premature, stillborn, or addicted infants.

### **Other Stimulants**

Stimulants can cause increased heart and respiratory rates, elevated blood pressure, dilated pupils, and decreased appetite. Users may perspire and experience headaches, blurred vision, dizziness, sleepiness, and anxiety. Extremely high doses can cause rapid or irregular heartbeat, tremors, loss of coordination, and physical collapse. An amphetamine injection creates a sudden increase in blood pressure that can result in stroke, very high fever, or heart failure.

Users also report feeling restless, anxious, and moody. Persons who use large amounts of amphetamines over a long period of time can develop an amphetamine psychosis that includes hallucinations, delusions, and paranoia. These symptoms usually disappear when drug use ceases.