

BASIC FACTS ABOUT DRUGS: TOBACCO

Tobacco use is the leading preventable cause of premature death in the United States. It is estimated that directly or indirectly, tobacco causes more than 400,000 deaths in the U.S. annually, a figure that represents nearly 20 percent of all U.S. deaths. These deaths have been attributed to a number of conditions defined as tobacco-related, including heart disease (115,000 deaths), cancer (136,000), chronic pulmonary disease (60,000), and stroke (27,000). According to a study published by the British medical journal Lancet, the rate of tobacco-related mortality throughout the entire developed world also averages about 20 percent of all deaths.

There are approximately 47 million smokers in the U.S. About 23 percent of adults smoke, and about 30 percent of adolescents. It is widely acknowledged that people who haven't used tobacco by age 21 are likely to remain non-smokers. So it would seem reasonable for much tobacco advertising to target potential adolescent users, although tobacco companies deny this. What is undeniable, however, are statistics showing that the average age of first tobacco use in the United States is 13.

Tobacco is a plant that comes in two varieties, *nicotiana tabacum* and *nicotiana rustica*. The latter is the most cultivated of the two and the source of all the tobacco produced in the U.S. The raw leaves are dried and shredded and then rolled into cigarettes or cigars, or packaged as pipe or chewing tobacco or as snuff. **Tobacco is the only organic source of nicotine, which is its addicting agent.** In addition to nicotine, tobacco smoke contains some 4,000 different gases and particles, including "tar," a conglomeration of many chemicals, which is especially harmful to the lungs. Among the harmful gases in tobacco smoke are nitrogen oxide, carbon monoxide, and cyanide. More than 40 carcinogens—chemicals capable of causing cancer—have been identified in tobacco smoke, and one of these, benzo(a)pyrene, is being studied as a possible direct link to cancer.

What is Tobacco?

The first European settlers in North America were introduced to tobacco smoking by Native Americans. By the early 16th century, the settlers were exporting tobacco to Europe, where it was believed to have curative powers. By the end of the 19th century, tobacco use was common in North America, but the quantity of tobacco that each individual used was still relatively small. A number of factors contributed to a **20th-century surge in tobacco use**. Invention of the safety match made it safe and easy to light up, and invention of the cigarette-manufacturing machine made it possible to produce pre-rolled cigarettes in great quantities. The advent of mass-circulation newspapers and magazines made

widespread advertising of cigarettes possible. Initially, men were the sole targets of the ads— smoking by women was considered impolite—and cigarettes were portrayed as a product for the rugged and powerful. With the rise of the Women's Suffrage movement, however, the tobacco companies began to fashion campaigns that encouraged women to smoke.

Cigarette use continued to grow at a rapid pace and **peaked at over 40 percent of the nation's adolescent-and-older population by the mid-1960's**. About this time, several epidemiological studies were released, including the U.S. Surgeon General's influential 1964 report, pointing to a connection between smoking and such diseases as cancer and respiratory illness. As these and subsequent studies were publicized, **fear of long-term illnesses caused many smokers to quit and many potential users never to begin**. At present, about 25 percent of Americans smoke, but the decline in use has now leveled off, and there are some indications that cigarette use may be increasing. Since the number of Americans who die each year from tobacco-related illnesses is still appallingly high and adolescent use is on the rise, there are now renewed efforts to prevent smoking.

How is Tobacco Taken?

The great majority of tobacco users smoke **cigarettes**, inhaling the nicotine-laden smoke into their lungs. A smaller percentage of users smoke cigars and pipes, and generally do not inhale, since cigar and pipe tobacco is potent enough for the nicotine in the smoke they produce to be readily absorbed in the mouth.

The smallest group uses "smokeless tobacco," in the form of **snuff** or the peculiarly American product, **chewing tobacco**. Traditionally, a "pinch" of snuff, a pulverized tobacco preparation, was inhaled through the nostrils. Now, however, it is mostly placed in the mouth ("dipped"), where the nicotine it contains is slowly and directly absorbed. Chewing tobacco is taken in similar fashion.

Both products stimulate saliva production, and users must spit frequently to clear the mouth of excess saliva and tobacco which has lost its flavor. Smokeless tobacco is popular among athletes, especially baseball players, who use it to prevent their mouths from becoming dry during games. Since **this form of tobacco is associated with cancers of the mouth and neck**, many high school and college athletic associations have banned it, and professional leagues are now discouraging its use.

What is Passive Smoking?

Passive smoking is the process that causes non-smokers to inhale smoke involuntarily. Some of the smoke they inhale is known as "sidestream smoke"—the smoke that smolders off the end of a cigarette, cigar, or pipe. This smoke has neither passed through a filter nor through the lungs of a smoker and is therefore extremely potent, containing more tar, nicotine, particles, and gases than inhaled smoke. Sidestream smoke can cause respiratory distress and allergic reactions, as well as lung cancer.

How Does Tobacco Affect You?

Smoking or chewing tobacco stimulates the habitual user, creating a pleasurable sensation not unlike a high. The effect is generally described as relaxing, although smoking releases the hormone epinephrine, which may create stress in the user.

Nicotine, perhaps the most commonly recognized ingredient of tobacco, is an addictive central nervous system stimulant. When nicotine is taken into the lungs, it is transmitted to the brain in seconds. It causes the heart to beat more rapidly, drawing in and pushing out more blood. It also makes the veins and arteries constrict, thus requiring the heart to labor harder. This results in increased blood pressure and heart rate.

Carbon monoxide is among the many toxic chemicals present in tobacco smoke. It impedes the ability of red blood cells to carry oxygen to bodily tissues, including heart and brain tissue. The lack of oxygen causes the heart to work harder and can lead to a thickening of the walls and possible heart failure.

Despite the fact that tobacco is a stimulant, addicted smokers usually feel that smoking relaxes them. This feeling of relaxation is in reality the result of their having satisfied a physical craving. Smokers are constantly experiencing the symptoms of nicotine withdrawal, and drawing smoke into their lungs relieves these symptoms by satisfying their craving for the chemical. Almost all tobacco users, including those who use smokeless varieties, thus become physiologically and psychologically dependent on nicotine. When they stop using, the withdrawal symptoms they experience can include changes in heart rate, blood pressure, appetite, temperature, and digestion. Withdrawal can also be accompanied by anxiety, insomnia, nausea, irritability, and fatigue.

What are Some Dangers of Tobacco Use?

Tobacco use has been implicated in:

Cancers of the lungs, mouth, throat, larynx, esophagus, stomach, pancreas, uterus, cervix, kidney, bladder, and some forms of leukemia

Cardiovascular disease, heart attack, fatal heart failure, and stroke

Pulmonary diseases, such as sinusitis, bronchitis, pneumonia, emphysema, and tracheitis (inflammation of the trachea)

Reproductive complications, such as miscarriage, premature birth, birth defects, and, especially, low-birthweight babies and babies with developmental problems. Nicotine depresses the appetite at a time when a woman should be gaining weight, and smoking reduces the ability of the lungs to absorb oxygen. Deprived of nourishment and oxygen, a fetus may not grow as fast and as much as it should.

Passive smoke has been implicated in:

Increased, exacerbated episodes of asthma and respiratory illnesses among children; respiratory illness and distress, asthmatic and allergic responses, and cardiovascular damage among adults.