Tobacco

Before the Europeans arrived in the United States, those Native Americans already living here were smoking tobacco in cigars and pipes, drinking it as a syrup, chewing it, sniffing it and using it in ceremonial enemas. Christopher Columbus was pivotal in introducing tobacco to "the Old World" upon his return to Europe. Tobacco comes from the flowering plant *nicotiana tabacum* (R-to view photos, University of Washington's Medicinal Herb Garden). The plant's rather benign appearance does not transfer to its impact on health: tobacco contributes to an estimated 400,000 premature deaths per year. In 1979, the United States Surgeon General identified tobacco as the one most important preventable cause of death. (1) Unfortunately, this statement is highly regarded by many to still be true.

Tobacco is consumed across the globe, at different rates from country to country. To view smoking behavior across the globe, travel to one of the two below references (R):

- The Tobacco Atlas provides worldwide data on per capita cigarette consumption. Look through global cigarette consumption (scroll down), and information on male smokers and female smokers. Other topics are available if you're interested.

**Forms of Tobacco Consumption**

The main forms of tobacco consumption today are cigarettes, cigars, pipes, chewing tobacco and snuff. There are differences in tobacco contents across the globe, depending upon substance quality, blending methods and products, and manufacturing processes.

**Cigarettes**

Cigarettes are smoked worldwide. Mature tobacco leaves are harvested, dried, shredded, remoisturized and packed in barrels to age, for about one to two years. After aging, different tobacco types are blended for flavor and mildness. Approximately 25% of cigarette tobacco comes from stems and other leaf scraps, which are ground and rolled into thin sheets, then shredded and mixed with regular tobacco. Chemicals are added for flavoring and to keep tobacco burning. Finally, the tobacco is rolled in thin paper. More than 90% of cigarettes sold in the United States have filters to remove some of the chemicals present in tobacco smoke.

In India and other places many individuals practice reverse smoking, where the cigarette is smoked from the lit end.

Bidi cigarettes, as shown in the picture at left, are especially popular among young people, are usually Indian products made of not only tobacco but also flavorings like chocolate or cherry. While bidis are thought by some to be safer than traditional cigarettes, most public health officials are concerned because bidis reportedly have significantly higher levels of nicotine, tar and carbon monoxide than regular cigarettes. The World Health Organization-India has a large document available online, *Bidi Smoking and Public Health* (O). The NIDA also features an article comparing the nicotine content in cloves, bidis, and traditional cigarettes (O).

Kreteks, also known as clove cigarettes, and as seen in the picture at right, are smoked worldwide (O). The economy has impacted exportation of bidis, as reported in the EconomicTimes.com (O).

**Cigars and Pipes**
Made from rolled, unshredded leaves, cigars are wrapped with a special leaf instead of paper. Pipe tobacco is shredded and flavored and eventually smoked via clay pipes, water pipes (shisha) and other materials. Tobacco present in cigars and pipes is more irritating, so smokers of cigars and pipes generally inhale less than do cigarette smokers. Cigars.about.com features an online video about How to Roll a Cigar by Hand (O). While lung cancer risk for cigar smokers is generally less than that for cigarette smokers, the American Lung Association asserts that those who smoke five cigars a day are two to three times more likely to die from lung cancer than nonsmokers.

**Chewing Tobacco, Snuff, and Betel Nuts**

"Smokeless tobacco" can be in the form of chewing tobacco, which, after shredding, is treated with flavoring and moisturizing agents. Available in a foil pouch, the chew is consumed by placing it in the mouth, where it is chewed or "held" and sucked.

Smokeless tobacco is notorious for the oral damage it can cause. At right you can see a picture of pre-cancerous gum damage. The Maxillofacial Center shows a close-up photo of leukoplakia, a whitish tumor frequently found underneath the tongue, as in this case. (WARNING: sensitive photo--O). Snuff is finely pulverized tobacco which may be placed between the lower lip and gum, or it may be inhaled.

**Betel nuts** are enjoyed by people around the globe, especially in Asia, in a similar manner as chewing tobacco (R). The famous "betel nut" smile shows darkened, often reddened teeth as a result from chronic, long-term betel nut chewing (R, gadling.com). Due to increasing oral cancer rates in Taipei City, the Taiwanese government has recently turned its attention to the betel nut business. (O--Taipei Times. Similar to the controversy in Seattle area over bikini-clad female baristas selling espresso from drive-up coffee stands is a debate over scantily clad women selling betel nuts In Taiwan (R, LA Times). Youtube.com features a video clip, Chew on This: Betelnut Culture in Taiwan, to show this unique aspect of the betel nut business (O).

**Tobacco Cessation**

Although many who smoke enjoy or rely on the practice, others wish to quit. There are a variety of quitting, or cessation, methods to help individuals. Using a wide variety of tools to help a person stop smoking can be valuable, since each person may find variation in value of any one method. Visit the American Cancer Society to learn more about the below cessation methods (R):

- Nicotine Replacement Therapy
- Prescription Drugs to Help You Quit Smoking
- Other Methods of Quitting Smoking

Look through and familiarize yourself with the different methods used to quit tobacco, including "cold turkey," nicotine replacement therapy, cognitive-behavioral therapy, cognitive therapy, and "other methods and adjuncts." This information can be found at Dr. Bob's Quit Smoking Page. (O) "Dr. Bob" is actually Robert Shubinski, M.D., a psychiatrist.

**Components of Tobacco Smoke**

While tobacco smoke is usually referenced as containing over 40,000 chemicals, several of those major chemicals include tar, nicotine and a variety of gases. Tar is the thick, black sticky substance produced as a result of burning tobacco. Tars carry the carcinogenic (cancer-causing) chemicals in smoke and they also contribute to chronic bronchitis. YouTube.com features an online video clip showing tar extraction from 400 cigarettes. (O)

Nicotine is the addictive substance in tobacco. Nicotine will increase heart rate and blood pressure, decrease skin temperature (due to vessel constriction), increase intestinal activity, decrease immune effectiveness, decrease muscle tone (which can contribute to the sensation of feeling relaxed while smoking). Read what the
National Institute on Addiction and Drug Abuse has to say about the substance at the article, "Is Nicotine Addictive?" (R) Druglibrary.org shows a list of chemical substances, including nicotine, and their relative addictiveness levels (R). Drugwars.org shows other addictive properties of nicotine, heroin, cocaine, alcohol, caffeine, and marijuana (O). More information on how drugs affect the brain is provided during the eighth week.

Some of the gases present in tobacco smoke include carbon monoxide and hydrogen cyanide. *Carbon monoxide*, a colorless, odorless gas, bonds to hemoglobin, a structure in the red blood cells, which are located in the blood. Hemoglobin normally carries the oxygen needed by the body's tissues. With smoking, carbon monoxide binds to the hemoglobin instead of oxygen, which affects the blood's ability to supply oxygen to the brain, the heart and other tissues. This can be particularly problematic during exercise. *Hydrogen cyanide* impairs the cilia of the bronchioles. The cilia act as mini "brooms" in the bronchioles, which allow mucus and other materials to be "swept" away before they reach the inner lung tissues. When the cilia is impaired, the mucus, tar and bacteria can accumulate, leading to chronic bronchitis. Many health-related resources cite 4000 chemicals present in tobacco smoke, among them over 60 carcinogens (cancer-causing materials) and over 600 additives. One example of such a resource is About.com, which lists the ingredients present in cigarette smoke (O).

**Smoking and Specific Populations**

Smoking behavior varies across populations. For instance, some states in the U.S. have higher rates than others. Similarly, smoking behavior varies by ethnicity. Please read about ethnicity-based variations in smoking behavior by traveling to the American Lung Association (R):

*Tobacco Use in Racial and Ethnic Populations* (ALA)

For more information on the incidence and impact of smoking across the globe, visit one or more of the following links (O):

- To view smoking rates across the world (United States information not included), visit Nationmaster
- The BBC also reports on smoking bans across the world
- European Public Health Alliance shows European countries with smoking bans
- NPR's "All Things Considered" program offers an audio feature on Turkey's smoking ban in July 2009
- The Guardian reports on the smoking ban taking place in Greece, July 2009
- CBS News reported on a CDC study assessing the smoking ban in Pueblo, CO has positively impacted the incidence of emergency events at local hospitals
- The CDC has a press release with general information about the study in Pueblo, CO
- The CDC's Morbidity and Mortality Weekly Report provide more in-depth information about the Pueblo, CO study

**Electronic Cigarettes**

For those who wish to keep the effects of nicotine but remove the smoke, electronic cigarettes, also known as e-cigarettes, are available. E-cigarettes deliver the desired nicotine effects, but the "smoke" is actually a vapor, thought to be much less harmful than the smoke associated with traditional cigarettes. For those interested, a news program posted on Youtube describe these e-cigarettes (O). These battery operated devices currently have no age restrictions for purchase online and, perhaps predictably, have been associated with FDA warnings due to the lack of health-related research available (O).