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Health Risks of E-cigarettes, Smokeless Tobacco, and Waterpipes [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 01/2015

Key Messages:

- Alternatives to smoking, such as e-cigarettes, smokeless tobacco, and waterpipes still contain the addictive chemical nicotine, in addition to other chemicals.
- While many of these alternatives may be marketed as being safer alternatives to smoking, they can also cause health risks.
- If you smoke or use these products talk with your doctor about ways to quit.

Although cigarette smoking has been steadily—but slowly—declining in the United States, many different alternative tobacco and nicotine delivery products have been gaining popularity. This is partly because many alternative tobacco products—which come in various sizes, flavors, and forms—are marketed and often perceived as being relatively safe.

However, alternative tobacco products, such as e-cigarettes, smokeless tobacco, and waterpipes can cause serious potential health problems, including cancer, because of the chemicals and toxins they contain.

E-cigarettes

Electronic cigarettes, also known as e-cigarettes or vapor cigarettes, are battery-operated devices that resemble traditional cigarettes. However, instead of burning tobacco, they generally contain cartridges filled with nicotine and other chemicals. When the e-cigarette is used, the liquid chemicals in the cartridge are turned into a vapor or steam that is inhaled by the smoker.

Because e-cigarettes have only been readily available in the United States since 2006, there is limited research on their health risks. According to one analysis by the U.S. Food and Drug Administration (FDA), the tobacco solution used in e-cigarettes contains a toxic chemical found in antifreeze and several cancer-causing chemicals, such as nitrosamines. Little more is known about the types or concentrations of chemicals, including nicotine, in e-cigarettes. However, the

chemicals in e-cigarettes, the potential harmful effects, and the addictiveness vary based on the brand.

Among all of the alternative tobacco products, e-cigarettes are the least regulated. They have no warning labels and can be sold to people of any age. The FDA has not approved e-cigarettes as a way to quit smoking. People with cancer who want to quit smoking should use the approved methods for quitting smoking.

Learn more about [ASCO's efforts in regulating e-cigarettes](#) [3].

Smokeless tobacco

Smokeless tobacco products contain tobacco or tobacco blends that are either chewed, sucked, or sniffed. Most smokeless tobacco products are placed between the cheek or lips and gums for a few minutes to hours. They have many names, such as spit tobacco, chew, pinch, or dip, and fall into several categories.

Chewing tobacco. This is tobacco in the form of loose leaves, leaves pressed together that is commonly known as "plug", or leaves twisted together to resemble a rope that is commonly known as "twist." Chewing tobacco is held between the cheek and gum. Usually the tobacco juices are spit out, but long-time users tend to swallow some of the juices.

Snuff. This is finely ground tobacco that comes in dry or moist forms and is sometimes packaged in ready-to-use pouches. Dry snuff is usually sniffed or swallowed, whereas moist snuff (similar to snus (see below)) is placed between the gum and the lip or cheek and slowly absorbed.

Snus. This is a tobacco product that originated in Sweden before being introduced to the United States. The moist tobacco powder is usually packaged in a pouch and placed in the mouth, inside the cheek, for absorption. It does not require the user to spit out tobacco juice; however, the pouch must be thrown away after use, not swallowed. Tobacco companies often market snus as a product that cigarette smokers can use in places where smoking is banned. Public health advocates worry that laws banning smoking in certain public places will not effectively encourage people to quit using tobacco products as long as snus is available.

Dissolvable tobacco. This is powdered tobacco that is compressed to resemble a small, hard candy that dissolves in the mouth. It does not produce any tobacco juice that needs to be spit out or leave behind any substance that the user must throw away.

Prolonged use of smokeless tobacco products can lead to serious health issues, such as cancer and heart disease. Some smokeless tobacco contains greater amounts of nicotine (three to four times more) than cigarettes. These products also contain numerous substances that increase the risk of [cancer](#) [4] of the mouth and throat. Chewing tobacco also may lead to white patches, called leukoplakia, on the gums, tongue, or lining of the mouth. Although most of these are noncancerous, some show early signs of cancer, and oral cancer often occurs near patches of leukoplakia. Chewing tobacco and other forms of smokeless tobacco can also cause gum disease and increase tooth decay.

Waterpipes

Another popular alternative tobacco product in the United States is the waterpipe. Waterpipes, also called hookahs, among other names, have been smoked in regions such as the Middle East, Asia, and Africa for more than four centuries.

Modern-day waterpipes, which are relatively inexpensive, are composed of four main parts:

- A small bowl on top of the waterpipe, which holds a special mixture of shredded tobacco and sweetener
- A broad base to hold water
- A pipe connecting the bowl to the base
- A rubber hose attached to a mouthpiece through which smoke is pulled

Small packets of the tobacco mixture burned in waterpipes are sold in a variety of flavors, such as apple, mint, and cappuccino. People can smoke waterpipes alone, but waterpipes are often used in social settings, with multiple people sharing the same mouthpiece.

Beyond their low cost and appeal as a traditional and communal activity, unfounded assumptions about their relative safety are driving the waterpipe trend, especially among college students and young people. According to one historical account of the waterpipe's origin, an Indian physician created the device, believing that by having the smoke first pass through a small amount of water, it would be a less harmful method of inhaling tobacco. Even though there is no proof that water can "filter" tobacco smoke and make it less harmful, this misperception still persists today.

Health concerns about smoking waterpipes include the following:

Exposure to the same toxins as cigarettes but in higher quantities. The smoke produced by a waterpipe contains high levels of many of the same toxic compounds found in cigarettes, including carbon monoxide, heavy metals, and chemicals linked to cancer. These toxins and chemicals are associated with lung, stomach, bladder, and esophageal cancers and have been known to clog arteries and cause heart disease and respiratory diseases, such a lung disease called emphysema that causes difficulty breathing.

In most cases, waterpipe smoking sessions, which typically last up to one hour, expose smokers to much higher levels of these toxins than cigarettes. For example, a smoker may inhale 100% to 200% more smoke during a waterpipe session, compared with a single cigarette.

Potential to spread infectious disease. Sharing a waterpipe with other people can increase the risk of contracting or transmitting diseases, such as tuberculosis, and viruses, such as herpes and hepatitis, especially if the mouthpieces are not cleaned properly.

Nicotine addiction. The tobacco used in waterpipes contains about the same amount of nicotine as cigarettes, which often leads to addiction.

More Information

Tobacco [5]

Stopping Tobacco Use After a Cancer Diagnosis [6]

Additional Resources

Centers for Disease Control and Prevention: Smokeless Tobacco Facts [7]

FDA: Electronic Cigarettes [8]

World Health Organization: Waterpipe Tobacco Smoking [9]

Links:

[1] <http://www.cancer.net/navigating-cancer-care/prevention-and-healthy-living/tobacco-use/health-risks-e-cigarettes-smokeless-tobacco-and-waterpipes>

[2] <http://www.cancer.net/about-us>

[3] <http://www.asco.org/practice-research/tobacco-cessation-and-control-resources>

[4] <http://www.cancer.net/node/19453>

[5] <http://www.cancer.net/node/25002>

[6] <http://www.cancer.net/node/28476>

[7] http://www.cdc.gov/tobacco/data_statistics/fact_sheets/smokeless/

[8] <http://www.fda.gov/newsevents/publichealthfocus/ucm172906.htm>

[9] http://www.who.int/tobacco/global_interaction/tobreg/waterpipe/en/