



POSITION STATEMENT ON SMOKELESS TOBACCO

National Federation of State High School Associations (NFHS) Sports Medicine Advisory Committee (SMAC)

Smokeless tobacco describes tobacco products that are not smoked or burned but are chewed or held in the mouth. Smokeless tobacco contains nicotine and many other harmful, cancer-causing chemicals which are absorbed through the lining of the mouth. In general, the three basic types of smokeless tobacco are:

- **Chewing tobacco:** Long strands of loose leaves, plugs or twists of tobacco.
- **Snuff:** Finely ground tobacco packaged in cans or pouches; sold as dry or moist.
- **Dissolvables:** lozenges, strips, sticks, or orbs.

The average age of first time users of smokeless tobacco is 10 years old and female youth are turning to smokeless tobacco as a means to lose or control weight. In 2012, it was found that in the United States, 3.5 percent of individuals aged 12 or older (9 million people) used smokeless tobacco in the past month. Smokeless tobacco was popularized among professional baseball players in the late 1970s and it's popularity has persisted. While the personal risks to the smokeless tobacco user are numerous, the societal effect of using smokeless tobacco has a much larger impact. Young children and teenagers who see their role models using chew during sports, races and rodeos - in person or in the media - often do so without knowing the health risks or addiction risk.

It is estimated that a container of spit tobacco has as much nicotine as 80 cigarettes, and studies have shown that smokeless tobacco users show symptoms of nicotine dependence at least as frequently as cigarette smokers. Unlike smoking which is done periodically during the day, smokeless tobacco is often used constantly, exposing users to high levels of nicotine continuously throughout the day.

Many health hazards are attributed to the use of tobacco products such as cigarettes, pipes, cigars and smokeless tobacco. Most people are easily able to associate diseases such as heart disease and lung cancer with cigarette smoking, but overlook the plethora of significant adverse effects of smokeless tobacco.

Because the ingredients are absorbed through the mouth, smokeless tobacco is believed to be less dangerous than cigarettes and other products where tobacco is burnt and nicotine absorbed through the lungs; however, while the risk of lung cancer is higher in traditional smokers, smokeless tobacco users have an 80% higher rate of oral cancer and a 60% higher rate of pancreatic cancer. Furthermore, snuff dippers consume on average more than 10 times the amount of cancer causing substances than cigarette smokers and the ingredients found in oral tobacco products are not regulated by the Food and Drug Administration (FDA). Substances found in smokeless tobacco include 28 known carcinogens including formaldehyde (used in embalming), polonium-210 (a radioactive material), and cadmium (found in batteries).

The use of smokeless tobacco increases the risk of oral cancers, including the mouth, throat, cheek, gums, lips and tongue. Once diagnosed with an oral cancer, 41% of people die within 5 years. Users are also at risk for cancer of the kidney, pancreas and digestive system. Other less serious but commonly encountered health issues include leukoplakia (greyish white mouth lesions that are precancerous), tooth decay from the high levels of sugar found in chew, stained and discolored teeth, bad breath, and gum disease and recession (and eventually tooth loss). Smokeless tobacco has been shown to act as an autonomic and hemodynamic stimulus by increasing heart rate, blood pressure and epinephrine levels. As a result, smokeless tobacco users have higher daytime heart rates than nonusers and have twice the risk of dying from cardiovascular disease.

Athletic performance is also negatively influenced by smokeless tobacco. There is a decrease in impact strength in the form of maximum voluntary force and maximum rate of force generation. Since nicotine in any form increases heart rate, blood pressure and oxygen consumption of the heart, there is an imbalance between the amount of oxygen the heart needs and how much is available, which can cause cardiac muscle to die. Nicotine also causes a decrease in cardiac muscular strength and impairs anaerobic performance.

A 2005 study showed that while high school athletes smoke tobacco products less than their non-athlete colleagues, they use smokeless tobacco at a much higher rate, 10-11% compared to 5.9% in non-athletes. A 1991 college population study demonstrated just about 50 percent of varsity baseball players used smokeless tobacco, and these results were reproduced in another survey in 2000. The Harvard College Alcohol Survey in 1999 showed that unlike cigarettes, smokeless tobacco use was more common among intercollegiate athletes. A large NCAA study published in 2001 showed that for the eight categories of substance use, smokeless tobacco was the third-most widely used at 22.5 percent (behind alcohol and marijuana), with wide variations according to sport. In rural areas, prevalence of smokeless tobacco use is about three times that of urban areas, and again is higher among subgroups of male students, such as rodeo athletes (42%), smokers (32%), wrestlers (19%), baseball players and Future Farmers of America members (18%), and football players (16%). The majority of tobacco smokers start smoking before they graduate high school.

Fortunately, from 2011 to 2018, there has been a declining trend in smokeless tobacco use among middle and high school students that parallels recent declines in smoking among that same group. However, this is balanced by a marked increase in e-cigarette use. (see table below)

	2011 % students	2018 % students
Cigarette use – HS students	15.8	8.1
Cigarette use – Middle school students	4.3	1.8
Smokeless tobacco use – HS students	7.9	5.9
Smokeless tobacco use – Middle school	2.7	1.8
E-cigarette use – HS students	1.5	20.8
E-cigarette use – Middle School students	0.6	4.9

Instead of addressing the addiction and health issues once a person has started using smokeless tobacco, it is most important to **prevent** the use of smokeless tobacco. Aside from its own effect on health, smokeless tobacco use also serves as a gateway drug for cigarette smoking among young adult males, with both past and current users approximately 225% more likely to have initiated smoking than nonusers.

The reduction in nicotine consumption, either via smoking or smokeless tobacco is the result of a concerted effort aimed at youth. Education can make a difference. When athletes understand that substance use will hamper performance, they are less likely to engage in this behavior. If athletes are made aware of the long-term effects of smokeless tobacco use on their health and physical abilities, when the effects are not immediately perceived, perhaps they will be less likely to use. As a result, the WHO, CDC, IOC and FIFA launched the Tobacco Free Sports Movement in 2001 to encourage non smoking practices in athletics.

In order to prevent and reduce tobacco addiction in high school athletes, comprehensive school policies should include **enforcement** of tobacco-free campus environments, prohibition of tobacco use at all school facilities and events, and encouragement and help students and staff who wish to quit using tobacco. Alcohol and substance use prevention and treatment programs should also address tobacco use.

The Centers for Disease Control and Prevention (CDC) has developed guidelines for school-based health programs to prevent tobacco use and addiction. These guidelines stress the importance of providing prevention education during the years when the risk of becoming addicted to tobacco is greatest, and offer opportunities for positive role modeling.

A coordinated school health program involving teachers, coaches, students, families, administrators and community leaders is an effective way to deliver consistent messages about tobacco use, including smokeless tobacco. These programs can dramatically decrease the likelihood that a young person will be a regular tobacco user as an adult.

References:

Campaign for Tobacco-Free Kids. The path to tobacco addiction starts at very young ages. Campaign for Tobacco-Free Kids, Washington DC. 2015. Available at: "http://www.tobaccofreekids.org/research/factsheets/pdf/0127.pdf". Accessed September 17, 2016.

Centers for Disease Control and Prevention. Youth and Tobacco Use. Accessed at: https://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/tobacco_use/index.htm

Chaffee, B. W, Couch, E. T, & Walsh, M. M. Smokeless Tobacco in Sport and Use Among Adolescents. *UCSF: Center for Tobacco Control Research and Education*. (2015) Retrieved from <https://escholarship.org/uc/item/6rc6v9t2>

Chagué F, Guenancia C, Gudjoncik A, Moreau D, Cottin Y, Zeller M. Smokeless tobacco, sport and the heart. *Arch Cardiovasc Dis*. 2015 Jan;108(1):75-83. doi: 10.1016/j.acvd.2014.10.003. Epub 2014 Nov 12.

Ebbert JO, Elrashidi MY, Stead LF. Interventions for smokeless tobacco use cessation. *The Cochrane Library*. 2015.

Escher SA1, Tucker AM, Lundin TM, Grabiner MD. Smokeless tobacco, reaction time, and strength in athletes. *Med Sci Sports Exerc*. 1998 Oct;30(10):1548-51.

Gingiss PL, Gottlieb NH. A comparison of smokeless tobacco and smoking practices of university varsity and intramural baseball players. *Addictive Behaviors*. 1991 Jan 1;16(5):335-40.

Green GA, Uryasz FD, Petr TA, Bray CD. NCAA study of substance use and abuse habits of college student-athletes. *Clinical Journal of Sport Medicine*. 2001 Jan 1;11(1):51-6.

Guidelines for School Health Programs to Prevent Tobacco Use: Summary.

http://www.cdc.gov/healthyyouth/tobacco/pdf/tobacco_summary.pdf. Accessed September 17, 2016.

Haddock CK, Vander Weg M, DeBon M, Klesges RC, Talcott GW, Lando H, Peterson A. Evidence that smokeless tobacco use is a gateway for smoking initiation in young adult males. *Preventive Medicine*. 2001 Mar 31;32(3):262-7.

Nelson DE, Mowery P, Tomar S, Marcus S, Giovino G, Zhao L. Trends in smokeless tobacco use among adults and adolescents in the United States. *American Journal of Public Health*. 2006 May;96(5):897-905.

Post A, Gilljam H, Rosendahl I, Bremberg S, Rosaria Galanti M. Symptoms of nicotine dependence in a cohort of Swedish youths: a comparison between smokers, smokeless tobacco users and dual tobacco users. *Addiction*. 2010 Apr 1;105(4):740-6.

Rigotti NA, Lee JE, Wechsler H. US college students' use of tobacco products: results of a national survey. *JAMA*. 2000 Aug 9;284(6):699-705.

Walsh MM, Langer TJ, Kavanagh N, Mansell C, MacDougal W, Kavanagh C, Gansky SA. Smokeless tobacco cessation cluster randomized trial with rural high school males: Intervention interaction with baseline smoking. *Nicotine & Tobacco Research*. 2010 Jun 1;12(6):543-50.

Walsh MM, Ellison J, Hilton JF, *et al.* Spit (smokeless) tobacco use by high school baseball athletes in California. *Tobacco Control* 2000;9:ii32-i39.

**Revised and Approved May 2020
October 2016**

DISCLAIMER – NFHS Position Statements and Guidelines

The NFHS regularly distributes position statements and guidelines to promote public awareness of certain health and safety-related issues. Such information is neither exhaustive nor necessarily applicable to all circumstances or individuals, and is no substitute for consultation with appropriate health-care professionals. Statutes, codes or environmental conditions may be relevant. NFHS position statements or guidelines should be considered in conjunction with other pertinent materials when taking action or planning care. The NFHS reserves the right to rescind or modify any such document at any time.