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Swedish Tobacco Use: Smoking, Smokeless, and History

By Dr. Brad Rodu

In virtually all developed countries, cigarette smoking has been the dominant form of tobacco consumption for about one hundred years — Sweden is a remarkable exception. While smoking rates among Swedish women have been consistent with those of other European countries (a fact reflected in comparable lung cancer rates), smoking rates among men in Sweden have always been lower than those of their European counterparts. Lower smoking rates mean fewer smoking-induced illnesses such as lung cancer. In fact, long-term studies reveal that Swedish men had among the lowest lung cancer rates in the world over the past fifty years. Instead of smoking, many men have preferred Swedish moist snuff (called snus), which is not burned but placed in the mouth. In fact, Sweden had the Western world's highest per capita consumption of smokeless tobacco throughout the twentieth century.

Swedish tobacco traditions are strong and very well documented because the country has the oldest continuous national records of tobacco manufacturing and consumption, dating back to 1780. I will describe the historical evolution of Swedish tobacco use, set in the broader context of global trends. This story is virtually unknown outside Scandinavia and not fully appreciated or understood even within Sweden, but it has special relevance to millions of smokers throughout the European Union and in other countries.

Tobacco's Origins and Global Spread

The tobacco plant is a native of the Western hemisphere; until the sixteenth century it was used only by American Indians in both smoked and smokeless forms (the latter placed in the mouth or inhaled as a powder through the nose). European explorers were quick to recognize and succumb to tobacco's seductive properties, and by the late 1500s tobacco use was firmly established in Europe. According to the historian Jan Rogozinski, the most common manufactured tobacco product in Europe until the early 1800s was a compressed plug or cake. This product was relatively simple to produce and was amenable to transport and storage. The plug could be cut into large pieces for chewing, grated into smaller pieces for smoking, or ground into a fine powder for nasal inhalation. Smokeless forms were the favored method of use because a day's supply could be carried and conveniently used in industrial and agricultural work settings. In contrast, smoking was uncommon because the production of cigars, cigarettes, and pipes was labor-intensive and expensive. In addition, a safe and ready source of fire was not always available, making smoking inconvenient at best and potentially dangerous.

Tobacco Use Transitions

As tobacco manufacturing became more efficient and the resulting products became more affordable, there was a gradual shift throughout most of Europe from the multipurpose plug to specialty products such as powdered snuff and pipe tobacco. The former became popular in the 1700s, and in the mid- to late 1800s European tobacco users turned with increasing frequency to pipe smoking. Even though smokeless tobacco products would be used in most European countries well into the twentieth century, the transition to pipe smoking was especially important because it began the ascendancy of tobacco use in smoked form, setting the stage for the later popularity of cigarettes.

In the Swedish empire, though, an entirely different transition took place, as plug tobacco was replaced by snus. In the seventeenth and eighteenth centuries Sweden was the only European country that encouraged tobacco cultivation, and this may have played a key role in the establishment of snus use. According to Inga Junhem, curator of the Tobacco and Match Museum in Stockholm, snus was first made from ground tobacco, potash, and water by Swedish farmers for their own consumption. The popularity of the product grew, and it became known as "fattigmans lyx" (the poor man's luxury). A snus factory was established in Goteborg as early as 1795, and this product was firmly established as the most popular tobacco product in Sweden by the 1840s. The dominant tradition of snus use in Sweden appears to have prevented the widespread adoption of tobacco combustion. This had a profound and lasting effect on Swedish tobacco use patterns and — in the case of cigarette smoking — related adverse health consequences. Those consequences are still present today, almost two hundred years later.

The Rise of Cigarette Smoking

How did cigarettes become the dominant form of tobacco consumption in the twentieth century? Several independent events set the stage for growth in cigarette production. These factors include the accidental discovery of tobaccos well suited for cigarettes, technical innovations improving the efficiency of cigarette manufacture, and the development of portable fire (the safety match).

First the accidental discoveries: Until the mid-1800s tobacco was smoked largely for its flavor; inhalation was not required. For example, Havana tobacco, preferred in the finest cigars, has a low nicotine content of 1.5%, compared with 4 to 6% in tobaccos later used for manufacturing cigarettes. Thus, for pipe or cigar smokers, who were not accustomed to inhalation, nicotine absorption (and by extension nicotine addiction) was minimized. In 1839, an attendant monitoring the heat or flue curing of Virginia bright leaf tobacco fell asleep, and the tobacco was accidentally overcured, resulting in what was presumed at first to be a ruined batch of leaf. However, further testing revealed a very flavorful and light smoking tobacco that allowed deep inhalation for maximum pleasure. With deep inhalation came an increased tendency toward tobacco addiction. In 1864, another strain of tobacco named White Burley was mistakenly planted near Higginsport, Ohio. It was subsequently discovered that this leaf had the

exceptional ability to absorb up to 25% of its weight in liquid additives, an attribute that would later give cigarette manufacturers the capacity to blend tobaccos to produce optimal smoking characteristics.

Technical innovations played an important role in the growth of cigarette consumption. Until 1880, cigarettes and cigars were hand rolled, which was a labor-intensive effort resulting in limited quantities and high prices. Then, in 1884, James Bonsack built the first successful cigarette rolling machine in the U.S., enabling these products to be mass produced. Only 500 million cigarettes were consumed in 1880. This figure rose to 4 billion by 1899; by 1924, the number reached a staggering 73 billion.

The predominant use of unburned tobacco in Sweden is especially ironic, since that country played a critical role in the invention and production of safety matches, a key factor in the growth of cigarette smoking. The safety match was invented in 1844 by Gustav Erik Pasch, a Swedish chemistry professor, and by the late 1800s Jonkoping was the center of a booming industry. The Swedish match industry was consolidated into Svenska Tandsticks AB Group under the direction of Ivar Kreuger in the early 1900s, and the company became the world's largest match producer, controlling 70% of the global market at its peak. Why was portable fire so important? As previously mentioned, smoking a cigar or pipe was a full-time activity requiring repeated lightings and constant attention. As such, smoking tended to be a leisure activity only practiced near a ready source of fire. The safety match made smoking far more convenient. And cigarettes had another big advantage. Unlike cigars and pipes, they only needed to be lit once, after which they burned smoothly and consistently, providing just the right dose of tobacco and nicotine.

As mentioned earlier, until the late 1800s smokeless tobacco had been the most common form of tobacco consumption. In 1882 the German physician Robert Koch discovered the bacterium that causes tuberculosis. It was soon ascertained (correctly) that this germ could be transmitted from one individual to another through close contact, and it was further postulated (incorrectly, as it turns out) that spitting of tobacco juices represented another route of infection. Thus, in "polite" urban society, smokeless tobacco and its attendant spitting gradually became socially unacceptable; ironically, the cigarette stood ready to serve as the "more hygienic" alternative.

Once again, we note a uniquely Swedish perspective on snus use that modified this effect. In Sweden, snus is placed behind the upper lip, which is in distinct contrast to use in the United States, where smokeless tobacco is placed in the cheek or lower lip. Why is this important? Because placement in the upper lip induces less salivary gland secretion than that in the lower lip. Consequently, Swedish snus users don't need to expectorate "tobacco juice," avoiding both the negative images of disease transmission and unsocial behavior.

The Impact of Wars on Demand

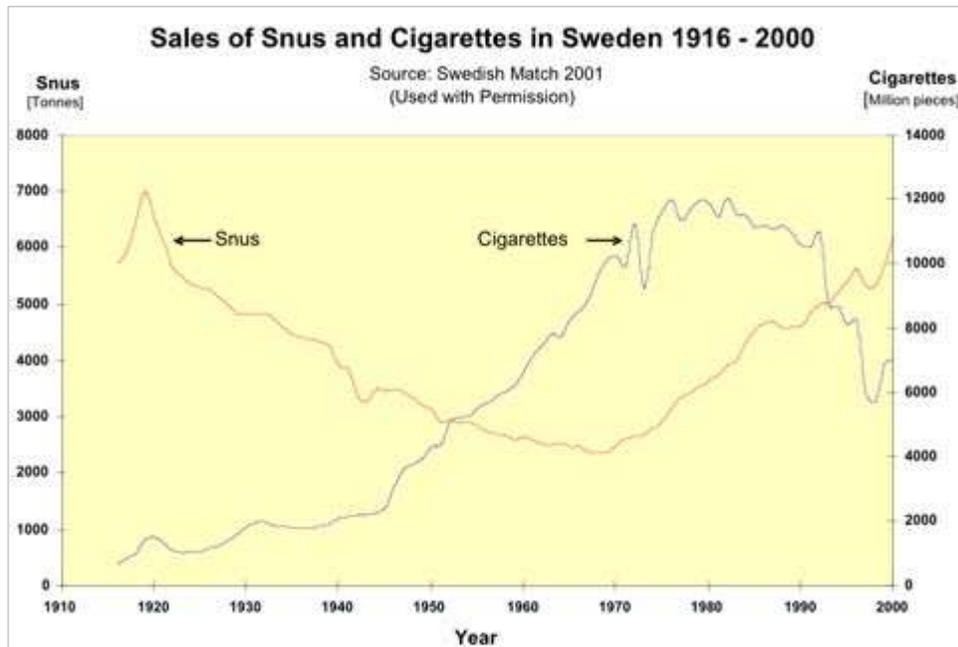
Thus, by the early 1900s the stage was set for cigarette consumption on a massive scale. The only factor left was massive demand; cigarettes were still an uncommon commodity as late as 1910, when they accounted for only 2% of American consumption. To create demand, there is no substitute for war. These events, representing cultural as well as physical conflicts between societies, have always played an important role in the spread of tobacco use. During the Crimean War in the early 1850s, French and English soldiers were introduced to Turkish and Russian tobacco blends and cigarettes. Philip Morris, an English tobaccoist, capitalized on this trend by producing cigarettes with these exotic tobacco blends for British and American markets in the 1850s and 1860s.

Tobacco was one of the necessities of war, perhaps because it provided soldiers in otherwise deprived circumstances with a momentary but psychologically pleasant diversion. During the American Revolutionary War, George Washington issued the following plea: "I say, if you can't send money, send tobacco." Cigarettes were considered to be effective for dealing with the stress of trench warfare in the First World War. They were given away to soldiers in 1917 and 1918, and General Pershing pleaded with Americans at home, "Tobacco is as indispensable as the daily ration; we must have thousands of tons without delay." In the Second World War, American soldiers also received free cigarettes in their rations. Several manufacturers, recognizing the vast future market, went to great lengths to provide adequate supplies to the troops.

The Twentieth Century Swedish Experience

The world wars produced tens of millions of smokers, with prevalence rates reaching as high as 50% in many countries by the 1950s and 1960s. But throughout this period Swedish men stood apart, as they consumed fewer cigarettes and more snus than any other comparable society. We now offer some reasons for this distinction.

Karl Fagerstrom, a nicotine and tobacco researcher from Helsingborg, believes that Sweden's neutrality in both world wars was a key factor in maintaining the low prevalence of smoking among men because they were not immersed in the smoking culture fostered by these events. That is, neutrality not only spared the lives of Swedish men during these wars, but it may have had the effect of saving lives for decades afterward through lower smoking rates. Swedish society was not completely immune from the post-war wave of smoking, as Swedish national tobacco consumption statistics show a jump in cigarette consumption starting after World War II, concurrent with a decline in snus consumption (Figure 1). Even then, smoking prevalence among men remained far lower than that of other European countries.



Other cultural influences may have played roles in the distinct pattern of tobacco use in Sweden. With the exception of Stockholm, Goteborg, and Malmo, Swedish society is not urban-centered but instead is focused on outdoor employment and leisure activities that are quite consistent with smokeless use. Snus use is exceptionally well suited for work in the historically important forestry industry, which is not particularly tolerant of open fires of any kind and which remains quite dominant throughout the northern two-thirds of the country.

More recently, increases in snus consumption may have been driven by both health concerns and cultural influences. The adverse health effects of smoking became widely known in the mid-1960s with publication of reports from the UK and the U.S. Surgeon General. Thus, it is not coincidental that the decline in snus consumption ended in the late 1960s, just as cigarette consumption started to reach a plateau. Cigarette consumption in Sweden has fallen even more sharply since 1990, and there is no question that this trend is driven largely by the dramatic decline in smoking prevalence among men, aided by a more recent decline among women.

Concurrent with health concerns, snus use among men was influenced to a great extent by pop culture, most notably with use by prominent male role models in professional hockey and soccer, the two most popular sports in Sweden. Lennart "Lill Strimma" Svedberg, arguably Sweden's most famous hockey star in the 1960s, was a high profile snus user who influenced a generation of boys. In fact, snus use is an integral part of the hockey and soccer cultures in Sweden, in large part due to the perceptions that it enhances performance (for which there is little scientific evidence) and is not particularly harmful to health (for which there is considerably more scientific support).

Summary

In 1999 Sweden became the first — and it remains the only — country to meet the World Health Organization's target for smoking prevalence below 20%. This unique and remarkable achievement was accomplished despite the fact that total tobacco consumption in Sweden is as high as that of other Western countries. This commentary has discussed the rich historical tradition of snus use in Sweden that contributed to low rates of smoking and smoking-related deaths among Swedish men. It is ironic, and perhaps even tragic, that Swedish snus is prohibited in every other country in the European Union, where rates of smoking and, most importantly, smoking-related deaths are far higher. The Swedish tobacco experience should become a prominent component of discussions about the future of tobacco use in the EU and throughout the world.

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