

Snus

W en.wikipedia.org/wiki/Snus

Not to be confused with the dry tobacco product, Snuff (tobacco).

Snus (; Swedish pronunciation: [snuːs]) is a moist powder tobacco product originating from a variant of dry snuff in early 18th-century Sweden. It is placed under the upper lip for extended periods. Snus is not fermented and contains no added sweeteners. Although used similarly to American dipping tobacco, snus does not typically result in the need for spitting and, unlike naswar, snus is steam-pasteurized.

Snus is commonly sold in the Nordic countries but sale is illegal in all the European Union except Sweden.^{[1][2]} Local varieties of snus, growing in popularity in the United States, have been seen as an alternative to smoking, chewing, and dipping tobacco. However, US-manufactured snus does not have the same production standards or ingredients as Swedish snus, and typically uses significant amounts of sweeteners.^[3]



Snus, made of tobacco, salt, and sodium carbonate



"White portion" snus of the Swedish label *General*

History

In the 16th century, snuff (pulverized tobacco), the precursor of snus (moist snuff), was introduced to France by French diplomat Jean Nicot, who worked at the court of King Henry II of France. He recommended snuff to Catherine de' Medici as a migraine remedy. When she became a regular user of snuff, it became a fashion among the court and upper-class citizens of France, especially among females, as it was deemed more socially acceptable than other forms of tobacco.

This trend of using snuff in the nose also spread to Sweden at the beginning of the 17th century. In the 19th century, Swedish producers began to



Catchlid found on many snus tins, which snaps in and out of place. The small compartment is typically used for the temporary storage of used snus portions.

manufacture moist snuff, which was placed under the upper lip and did not require spitting. It became known as snus. Ettan (meaning "the number one"), registered since 1822, is the oldest brand of snus still sold.

It is a popular myth that snus or any other forms of smokeless tobacco contains fiberglass, or glass particles, as an aid to the absorption of nicotine by the user's blood. This is not true.^[4] Mucous membranes readily absorb free nicotine. The burning sensation is caused by the nicotine itself (similar to the tingle of nicotine gum) and some food additives such as sodium carbonate (E500). Sodium carbonate is a food additive used to increase the pH of the tobacco (reduce the acidity). This increases the bioavailability of the nicotine, meaning more is available for absorption. Some flavorings (mints in particular) are astringent and may increase the tingling or burning sensation.

Confusion of snus and snuff

Confusingly, the English word "snuff" is translated to *snus* in Swedish, and the word "snuff" is often used in English to refer to both the nasal form and both the oral forms of snus and dipping tobacco.

However, snuff used in the nose is referred to *astorrsnus* (dry snuff) or, more correctly, as *luktsnus* ("smelling snuff") in Swedish. The moist form of snuff placed under the upper lip is called simply *snus* in Swedish.

The word "snuff" can also refer to dipping tobacco (also known as moist snuff), which is applied to the lower lip and the gums, rather than used nasally or placed under the upper lip. However snus, dry snuff, and dipping tobacco are distinct products.

Differences between snus and similar tobacco products

See also: Smokeless tobacco

Some forms of tobacco consumed in the mouth may be categorized as:

- **Scandinavian snus** is a moist form of smokeless tobacco which is usually placed under the upper lip, and which does not result in the need for spitting. It is sold either as a moist powder known as loose snus, or prepackaged into pouches known as portion snus. Snus is often mildly flavored with food-grade smoke aroma, bergamot, citrus, juniper berry, herbs and/or floral flavors. Most Scandinavian snus is produced in Sweden and regulated as food under the Swedish Food Act.^[5]
- **American snus**, available since the late 1990s, is similar to the Scandinavian form, but usually has a lower moisture content and lower pH, resulting in lower bioavailability of nicotine than Scandinavian varieties, meaning less is available for absorption.^[6] American snus is often flavored, e.g. with spearmint, wintergreen, vanilla or fruit (e.g. cherry), and may contain sugar.
- **Nasal snuff** (mostly English, German, and Scandinavian), referred to as *luktsnus* in Swedish and *luktesnus* in Norwegian, and as "Scotch snuff" in the US, is a dry, powdered form of snuff. It is insufflated – "sniffed" but not deeply "snorted" – through the nose. It is often mentholated or otherwise scented.
- **Chewing tobacco** (North American, European), also known as chew (or in some

Southern US dialects as *chaw*), is tobacco in the form of short or long, loose leaf and stem strands (like pipe tobacco or longer), or less commonly of chopped leaves and stems compressed into blocks called plugs, or even finely ground pieces compressed into pellets. A few brands are cut into much finer loose strands, like cigarette rolling tobacco. Chew is placed between the cheek and the gums, or actively chewed. It causes copious salivation, especially when chewed, and due to its irritant (even nauseating) effect on the esophagus, this "juice" usually requires spitting. Chewing tobacco is a long-established North American form of tobacco (derived from traditional use of raw tobacco leaf by Indigenous peoples of the Americas), and is also legal in the European Union. Chewing tobacco is sometimes flavored, e.g. with wintergreen, apple, or cherry.

- **Dipping tobacco** (North American), also known as dip, spit tobacco or, ambiguously, as moist snuff, is a common American form of tobacco (also available in Canada and Mexico). It is moist, and somewhat finely ground, but less so than snus. Dipping tobacco (so called because users dip their fingers into the package to pinch a portion to insert into the mouth) is placed between the lower lip or cheek and the gums; it is not used nasally. As with chewing tobacco, salivation is copious, and usually spat out. Dipping tobacco is usually flavored, traditionally with wintergreen or mint, though many other flavorings are now available, while some unflavored brands remain popular. Beginning in the mid 1980s, several brands have packaged American dipping tobacco in porous pouches like those used for many brands of Scandinavian and American snus.
- **Makla** (Belgian and African) is a moist tobacco similar to Scandinavian snus in many respects. It is placed in the upper lip in a manner similar to snus; it differs in that it is more finely ground and has an even higher nicotine content and pH level. Sales within the European Union are legal due to its classification as a chewing tobacco. Its safety in comparison to snus has not been studied sufficiently.
- **Naswar** (Central Asian) is a moist, powdered form of tobacco, often green and sometimes caked with the mineral lime and/or wood ash. It is used like dipping tobacco or put under the tongue, and is pungent and often heavily flavored, e.g. with culinary oils (cardamom, sesame), the fruit lime, menthol, etc.

Types

Many types of snus are available:

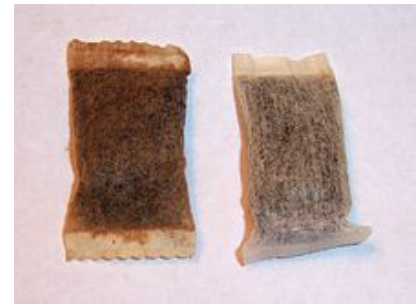
- **Loose snus** is a moist powder which can be portioned and packed into a cylindrical or spherical shape with the fingertips or a purpose-made cylindrical device. The end result is often referred to as a *pris* (pinch), *buga*, *prilla*, or *prell* (slang). Some users (usually long-time users) simply pinch the tobacco and place it under their upper lip (farmer's pinch or living snus). Over time, the demand for loose snus has been replaced by portioned varieties. Many users of snus today prefer the discrete nature of the latter



Cylindrical (fingertips) *pris* of Swedish brand Skruf

variety.

- **Portion snus** is prepackaged moist powder in small teabag-like sachets. It comes in smaller quantities than the loose powder, but is considered more convenient and discreet than loose snus. The two varieties of portion snus are:
 - Original portion, introduced in 1973, is the traditional form. The sachet material is moisturized during the manufacturing process, resulting in a brown, moist pouch.
 - White portion is a milder-tasting and slightly slower-release form. The sachet material is not moisturized during the manufacturing process, resulting in a white, dry pouch. The tobacco within the portion material has the same moisture content as original portion snus, but the nicotine and flavor are somewhat slower in delivery due to the drier sachet. "White portion" refers to the style, not the color, as many white portion snus use a black material instead of white, yet are "white portion". Examples include General Onyx and Grovsnus Svart (Black) and Blue Ocean (Blue).
 - Sting-free portion is a patent-approved ^[7] snus pouch, introducing a protective side, that reduce stinging sensation and irritation to the snus users gum and oral mucous membrane. The innovation received the award for "Most exciting newcomer to the industry" and The Golden Leaf Award [GTNF2017 awards](#) at The Global Tobacco and Nicotine Forum, GTNF, in New York City in September 2017. The jury award motivation was that it "*not only serves the cause of harm reduction and could easily be considered the greatest snus innovation since the invention of the pouch*".



Left is an original (or "regular") portion. Right is a "white portion". White portions can be any color, as the name refers to the style, not the color.

Portioned snus is available in three different sizes: mini, normal/large (most common) and maxi. The weights may vary, but the labelling on most packages of snus disclose their net weight. Mini portions typically weigh close to 0.5 g, normal (large) portions weigh around .8 to 1 gram, and maxi portions weigh up to 1.7 g, depending on brand. Some brands also offer the choice of "regular" and "long" versions of the normal size sachet, which are similar in content weight. These long portions differ from traditional sachets in that they are slimmer but longer, in order to fit against the gums more comfortably.

The nicotine content of snus varies among brands, with the most common strength being 8 mg of nicotine per gram of tobacco. In recent years, snus manufacturers have released stark (strong or *sterk*) and extra stark (extra strong or extra *sterk*) varieties with greater nicotine content. Stark varieties contain, on average, 11 mg of nicotine per gram of tobacco, while extra stark varieties may contain up to 22 mg of nicotine per gram of tobacco. Recently, the Siberia brand released its "Extremely Strong" snus which boasts 45 mg of nicotine per gram of tobacco and is currently the highest nicotine-per-gram snus available.

Contents

Swedish snus is made from air-dried tobacco from various parts of the world. In earlier times, tobacco for making snus was laid out for drying in Scania and Mälardalen, Sweden. Later, Kentucky tobaccos were used. The ground tobacco is mixed with water, salt, an alkalizing agent (today this is sodium carbonate), and aroma, and is prepared through heating. After the heating process, food grade aromas are typically added. In Sweden, snus is regulated as a food product and, for this reason, all ingredients are listed on the label of each individual package (can) of snus. Moist snus contains more than 50% water, and the average use of snus in Sweden is approximately 800 grams (16 units) per person each year. About 12% (1.1 million people) of the population in Sweden use snus.^[6] Unlike dipping tobacco and chew, most snus today does not undergo the fermentation process, but is instead steam-pasteurized. Although steam-pasteurization is remarkably complex, it has the advantages of inhibiting the growth of bacteria that facilitate the formation of tobacco-specific nitrosamines, while preserving the desired texture and mouthfeel of the snus. The absorption of nicotine, the addictive substance in tobacco, from snus depends on the level of nicotine in the snus and the PH level in the box.^[9] A voluntary quality standard for snus products has been introduced (Gothiateg) that sets maximum levels for certain controversial constituents including nitrosamines, heavy metals, and polyaromatic hydrocarbons. Most manufacturers of Scandinavian type snus adhere to this standard.

Snus is sold primarily in Sweden, Denmark, Faroe Islands and Norway, and has more recently been introduced to South Africa and the U.S. It can be found in places frequented by Scandinavian tourists, such as Murmansk in Russia or Chania in Greece (with the exception of all countries in the European Union except for Sweden). It is sold in small tins which, in the earlier years, were made of porcelain, wood, silver, or gold. Portioned snus usually comes in plastic tins of 24 portions, containing about .75 to 1 gram of snus each, while loose snus is mostly sold in wax coated cardboard containers with plastic lids (similar to dip snuff), at 42 g (50 g before 2008). Mini-portion and medium-portion snus are increasingly popular formats. Most of these products come in tins containing 20 portions, of either 0.65 or 0.5 grams each for a total of just under 13 or 10 grams, particularly with those for whom concealing their use of smokeless tobacco in places is of utmost importance.

Industry

Although Swedish snus was previously only available by mail order in the US, an increasing number of tobacco retailers have now begun to stock it. R. J. Reynolds Tobacco Company, Philip Morris USA, and U.S. Smokeless Tobacco Company now produce similar products called Camel Snus, Marlboro snus, and Skoal snus, respectively. While American snus is packaged in much the same way (moist tobacco in a small pouch), production methods vary considerably from traditional Swedish methods. Additionally, differences in the way American snus is formulated may diminish some of its possible health benefits over other tobacco products.^[6] Swedish Match, the leading manufacturer of Swedish snus, is currently test-marketing snus in Canada, Russia, and several regions throughout the US.

In October 2012, the European Union's commissioner for health and consumer policy, John Dalli, resigned,^[10] following an investigation by the European Anti-fraud Office (OLAF), into a complaint made by tobacco producer Swedish Match. OLAF found that an unnamed

Maltese entrepreneur approached Swedish Match using his contacts with Mr. Dalli, seeking payments in exchange for influence over possible snus legislation. The new EU's Tobacco Products Directive was expected to be appointed during autumn 2012.

Swedish Match has commented that they expect, given the proven scientific facts regarding snus, that it should be considered in a fair legal process for the proposal of a new Tobacco Products Directive.^[11]

Health consequences

A study of almost 10,000 Swedish, male construction workers published in the *International Journal of Cancer* in 2008 found a statistically significant increase in the incidence of the combined category of oral and pharyngeal cancer among daily users of snus.^[12] Another study reports 16 cases of Oral cancer among snus users.^[13] Other studies and opinion pieces in renowned journals, such as the *British Medical Journal* and *The Lancet*,^{[14][15]} do not confirm any correlation between snus usage and oral cancer, but one study suggests a probable increased risk of pancreatic cancer as a result of snus use.^[16] A pooled analysis of nine prospective studies involving more than 400,000 men and published in the *International Journal of Cancer* in 2017 found that use of snus was not associated with a greater risk for pancreatic cancer.^[17]



Warning label on a container of Swedish snus. The text reads: "This tobacco product may damage your health and is addictive". Note the "best before" date and list of ingredients, which is required by Swedish law.

Many cardiologists believe oral nicotine products contribute to the potentiation of sympathetic nerve tone, and may aggravate hypertension due to the effects of nicotine on cholinergic and dopaminergic neurotransmission. At higher doses, tachycardia, reflex bradycardia, arrhythmia or even cardiac arrest can occur in some individuals. Further studies are needed in this regard.^[18] Individual studies have indicated snus is correlated with death from heart attack and with heart failure.^[19]

The European Union banned the sale of snus in 1992, after a 1985 World Health Organization (WHO) study concluded that "oral use of snuffs of the types used in North America and western Europe is carcinogenic to humans",^[20] but a WHO committee on tobacco has also acknowledged the evidence is inconclusive regarding health consequences for snus consumers.^[3] Only Sweden and European Free Trade Association (EFTA)-member Norway are exempt from this ban. A popular movement during the run-up to the 1994 referendum for Sweden's EU membership made exemption from the EU sale ban of snus a condition of the membership treaty.

Recent actions by many European governments to limit the use of cigarettes has led to calls to lift the ban on snus, as it is generally considered to be less harmful than cigarette smoke, both to the user^[21] and to others.

Since snus is not inhaled it does not affect the lungs as cigarettes do. Because it is steam-pasteurized rather than fire-cured like smoking tobacco or other chewing tobacco, it contains lower concentrations of nitrosamines and other carcinogens that form from the partially anaerobic heating of proteins - 2.8 parts per million for Ettan brand, compared to as high as 127.9 parts per million in some American brands.^[22] WHO acknowledges Swedish men have the lowest rate of lung cancer in Europe, partly due to the low tobacco smoking rate, but does not argue for substituting snus for smoking, stating that the effects of snus still remain unclear. Around 2005, several reports, partially funded by the snus industry, indicated that no carcinogenic effects could be attributed to Nordic snus, and this resulted in the removal of the warning label that claimed snus could cause cancer. It was replaced with the more vague label "May affect your health negatively". Research is continuing, but no conclusive reports have been made regarding major adverse health effects of snus.

A 2014 report commissioned by Public Health England on electronic cigarettes said snus "has a risk profile that includes possible increases in risk of oesophageal and pancreatic cancer, and of fatal (but not non-fatal) myocardial infarction, but not COPD or lung cancer."^[23]

Based on the mounting research demonstrating the limited harm of snus, snus manufacturer Swedish Match filed a Modified Risk Tobacco Product application with the U.S. Food and Drug Administration Center for Tobacco Products to modify the warning label requirements by:^[24]

1. removing the current warnings, "This product can cause mouth cancer" and "This product can cause gum disease and tooth loss."
2. replacing the current warning, "This product is not a safe alternative to cigarettes," with "No tobacco product is safe, but this product presents substantially lower risks to health than cigarettes."
3. retaining the current warning, "Smokeless tobacco is addictive."

The FDA's Tobacco Products Scientific Advisory Committee voted against the request in April 2015 but Swedish Match is continuing their efforts for this change.^[25]

Medical journal *The Lancet* ^[26] published a major study, "Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016", in November 2017. The scientific conclusions with regards to snus was the following. "There is sufficient evidence that chewing tobacco and other products of similar toxicity cause excess risk of oral and oesophageal cancer while, at this time, existing evidence does not support attributing burden to snus or similar smokeless tobacco products." ...while **for snus or snuff we did not find sufficient evidence of a RR (relative risk) greater than one for any health outcome.** " A relative risk [RR] of 1.0, means you are average - [there is no difference in risk between the control and experimental groups]".^[27]

Scandinavian snus is regularly available, refrigerated, in the United States at smokeshops, especially in major cities. The considerably different, sweetened American snus is more commonly found at convenience stores, in multiple brands produced by US-based cigarette companies. Neither product category has made much of an inroad into the market-share held by the dipping tobacco products more common in that country.

Debate among public health researchers

There is some debate among public health researchers over the use of "safer" tobacco or nicotine delivery systems, generally dividing along two lines of thought. Some (primarily in the European Union and Canada) believe in "tobacco harm reduction", with the general belief that while it should remain a goal to reduce addiction to nicotine in the population as a whole, the reduction of harm to the health of those who choose to use nicotine is more pragmatic than the desire to reduce overall nicotine addiction. In other words, people using more harmful forms of tobacco (e.g., cigarettes) should be encouraged to switch to less harmful products (e.g., snus). The other school of thought is that no tobacco product should be promoted, and that attention should be placed instead on getting users to switch to nicotine replacement therapy or quit altogether.

One proponent of using snus for harm reduction is Karl Fagerström, a PhD in psychology regarded as a leading researcher in smoking cessation in Sweden. Some research available today shows snus use reduces or eliminates the risk of cancers associated with the use of other tobacco products, such as chewing tobacco (the type primarily used in the US and Canada, created in a process similar to cigarette tobacco) and cigarettes.^[28] The widespread use of snus by Swedish men (estimated at 30% of Swedish male ex-smokers), displacing tobacco smoking and other varieties of snuff, is thought to be responsible for the incidence of tobacco-related mortality in men being significantly lower in Sweden than any other European country. In contrast, since women traditionally are less likely to use snus, their rate of tobacco-related deaths in Sweden can be compared to that of other European countries.

Snus may be less harmful than other tobacco products (see above). According to Kenneth Warner, director of the University of Michigan Tobacco Research Network, "The Swedish government has studied this stuff to death and, to date, there is no compelling evidence that it has any adverse health consequences. ... Whatever they eventually find out, it is dramatically less dangerous than smoking."^[29]

A 2014 report commissioned by Public Health England on another avenue for tobacco harm reduction, electronic cigarettes, examined the case of snus as "a unique natural experiment in the impact of a socially accepted, non-medical, affordable and easily accessible reduced harm product on the prevalence of tobacco smoking". They concluded that "Although controversial, the Swedish natural experiment demonstrates that despite dual use and primary uptake of the reduced-harm product by young people, availability of reduced-harm alternatives for tobacco smokers can have a beneficial effect. While snus is not likely to become a legal or indeed politically viable option in the UK, this data proves the concept that harm reduction strategies can contribute to significant reductions in smoking prevalence."^[30]

Ongoing discussion and debates among primary scientific researchers of the effects of snus use on life expectancy appear to indicate a significant increase in life expectancy among persons who previously smoked tobacco and switch to snus, depending on the age of the persons who switch, even when it is assumed that 100% of the risk of cardiovascular diseases among smokers transfers to snus users. This study determined that "for net harm to occur, 14-25 ex-smokers would have to start using snus to offset the health gain from every smoker who switched to snus."^[31] It is also noted, in the correspondence seen in the previous citation,^{[32][33]} that concerns about the effect of marketing by the tobacco industry, as influenced by the results of these scientific studies, is of primary concern to many researchers in the field, including the risk of emboldening the industry to attempt to increase snus sales among young people and promote dual-use of snus and smoked tobacco, and the use of medical nicotine, rather than snus, can better target at-risk populations, given better access and pricing.

However, a growing consensus among researchers of smoking cessation have found nicotine replacement therapy (NRT) products to have limited effectiveness because tobacco users may be seeking the combination of MAO inhibitors (which are found in tobacco) and nicotine, or that NRT products do not delivery sufficient quantities of nicotine. MAO inhibitors in tobacco act to amplify the rewarding effects of nicotine, but may also act as a form of self-medication for people with depression. This could explain the association between mental illness and smoking, the minimal efficacy of NRT, But a confounding variable is that chronic nicotine administration itself has been shown to desensitize nicotine receptors overtime and lead to antidepressant effects.^[34] It should be noted that smoking cessation itself is strongly associated with reduced depression, anxiety, and stress and improved positive mood and quality of life compared with continuing to smoke.^[35] It has been hypothesized that snus' success when compared with conventional NRT as a cigarette substitute could be attributed to its MAO inhibiting properties. However, studies seem to suggest that for MAO inhibition, tobacco has to be pyrolyzed (i.e., ignited as in cigarettes, cigars, and pipes). The competing theory is that the success of snus as a smoking alternative is due to its ability to deliver nicotine similar to that acquired through cigarettes, and twice as high as that acquired through NRT.^[36] Furthermore, the use of snus, similar to cigarettes, offers a choice of brand, aesthetic rituals of use, and tastes of tobacco and thus has sensory effects that NRT products perhaps lack. The use of daily snus for smoking cessation has had a 54% success rate for complete abstinence, and a 60% success rate for great reduction in cigarette consumption.^[37]

Opponents of snus sales maintain, nevertheless, that even the low nitrosamine levels in snus cannot be completely risk-free, but snus proponents point out that, inasmuch as snus is used as a substitute for smoking or a means to quit smoking, the net overall effect is positive, similar to the effect of nicotine patches.^[38]

In addition, this eliminates any exposure to second-hand smoke, further reducing possible harm to other non-tobacco users. This is seen by public health advocates who believe in "harm reduction" as a reason for recommending snus, as well as other NRTs, rather than continued use of cancer-causing nicotine delivery systems.

This does not, however, eliminate any harm to health caused by the nicotine itself. Current research focuses on possible long-term side effects of nicotine on blood pressure,

hypertension, and possible risk of pancreatic cancer due to tobacco-specific nitrosamines (TSNAs). TSNAs are the only component of tobacco shown to induce pancreatic cancer in laboratory animals.^[39] Nicotine may also exacerbate pancreatic illness, because nicotine stimulates the gastrointestinal tract's production of cholecystokinin, which stimulates pancreatic growth and may be implicated in pancreatic cancer. Thus far, the evidence specifically implicating snus in pancreatic cancer is only suggestive.^{[40][41]} Notably, the probability of developing pancreatic cancer from cigarettes is higher than the suggested chance of developing pancreatic cancer from snus.^{[42][43]}

The effect of Swedish snus on blood pressure has been studied at Umeå University in a randomly selected population sample of 4,305 Swedish men between the ages of 25 and 74. In the study, published in November 2008, the researchers found no elevation of blood pressure in snus users who had never been smokers compared to tobacco nonusers. Snus users had lower systolic blood pressure than tobacco nonusers in the unadjusted data.^[44]

Tobacco-free snus

Main article: Herbal smokeless tobacco

One variation of snus is tobacco-free snus. This snus-like product, instead of using tobacco, uses a mixture of coconut husk and oat husk or tea leaves, with salts and flavourings.^[45] Like snus, it is available either loose or, more commonly, in bags, which are sometimes known as pods. Even though it is not made from tobacco, most retailers in Sweden will not sell it to persons under the age of 18.








A tub of Kick-Up tobacco-free snus. This brand uses coconut husk


Tobacco-free snus was introduced by Swedish Match with the Onico brand in 2006.^[46] At first, it was made with corn starch but, in 2008, the formula was changed when it was found to cause dental issues due to the sugar created.

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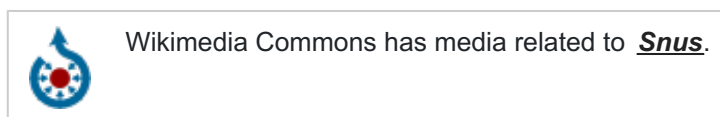
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Further reading



A number of peer-reviewed studies of snus use have been published:

Cardiovascular diseases

- Hergens, Maria-Pia; Ahlbom, Anders; Andersson, Tomas; Pershagen, Göran (2005). "Swedish Moist Snuff and Myocardial Infarction Among Men". *Epidemiology*. **16** (1): 12–6. doi:10.1097/01.ede.0000147108.92895.ba. PMID 15613940.
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Diabetes

- Eliasson, M.; Asplund, K.; Nasic, S.; Rodu, B. (2004). "Influence of smoking and snus on the prevalence and incidence of type 2 diabetes amongst men: The northern Sweden MONICA study". *Journal of Internal Medicine*. **256** (2): 101–10. doi:10.1111/j.1365-2796.2004.01344.x. PMID 15257722.



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- Luo, Juhua; Ye, Weimin; Zendehdel, Kazem; Adami, Johanna; Adami, Hans-Olov; Boffetta, Paolo; Nyrén, Olof (2007). "Oral use of Swedish moist snuff (snus) and risk for cancer of the mouth, lung, and pancreas in male construction workers: A retrospective cohort study". *The Lancet*. **369** (9578): 2015–20. doi:10.1016/S0140-6736(07)60678-3. PMID 17498797.
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Smoking cessation

- Gilljam, Hans; Galanti, M. Rosaria; Swedish Cancer, Society; Pharmacia, AB (2003). "Role of snus (oral moist snuff) in smoking cessation and smoking reduction in Sweden". *Addiction*. **98** (9): 1183–9. doi:10.1046/j.1360-0443.2003.00379.x. PMID 12930201.
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- Asplund, Kjell (October 29, 2002). *Snuffing, Smoking and the risk for heart disease and other vascular diseases (PDF)* (3rd ed.). *Action on Smoking and Health*.
- The 3rd (2002) International Conference on Smokeless Tobacco - Daily Media Summaries from the U.S. *National Cancer Institute*
- Discussion of Tomar, S L; Connolly, GN; Wilkenfeld, J; Henningfield, JE (2003). "Declining smoking in Sweden: Is Swedish Match getting the credit for Swedish tobacco control's efforts?". *Tobacco Control*. **12** (4): 368–71. doi:10.1136/tc.12.4.368. PMC 1747795 . PMID 14660769.
- Kozlowski, L T; O'Connor, RJ; Edwards, BQ (2003). "Some practical points on harm reduction: What to tell your lawmaker and what to tell your brother about Swedish snus". *Tobacco Control*. **12** (4): 372–3. doi:10.1136/tc.12.4.372. PMC 1747799 . PMID 14660770.