

Nicotine Pouches: A Potential Cause for Concern



Nicotine pouches first appeared in the U.S. in 2015 and are part of a broader range of oral nicotine products including nicotine gums, lozenges and snus. These products are made differently than traditional smokeless products as they contain nicotine and flavorings but not tobacco leaf. Traditional tobacco manufacturers first began to market these products, but smaller companies have begun to market them as well. Sales of nicotine pouches have skyrocketed in recent years. Nicotine pouch products raise new questions about potential health risks and public health impacts, including youth uptake and addiction. These products are flavored and easy to conceal – two of the characteristics of e-cigarettes that led to their popularity among youth. In addition, marketing and social media trends with the products are concerning, as they appear to mimic patterns seen with JUUL e-cigarettes that led to the sudden surge in youth e-cigarette use.

What are Nicotine Pouches?

Nicotine pouch products contain nicotine, water, flavoring and sodium carbonate inside a small cellulose envelope. The pouches are placed inside the mouth between the lip and gum and nicotine absorption occurs through the lining of the mouth. Nicotine pouches are distinguished from the smokeless tobacco product snus (a spitless, moist tobacco pouch)¹ because they do not contain tobacco leaf. Because they are so small and do not require spitting, their use is very discrete and can easily be concealed.



These products are available in a range of nicotine levels and flavors. They can use either nicotine derived from tobacco, nicotine created in a lab (synthetic nicotine), or synthesized compounds that claim to mimic the effects of nicotine (nicotine analogues).² Nicotine pouches are available in a range of nicotine strengths, typically between 2 mg and 15 mg per pouch,³ but some products have been found to contain up to nearly 50 mg of nicotine per pouch.⁴ Studies have found that nicotine level labeling on packages can be vague (i.e., words or symbols of relative nicotine strength) or inaccurate and inconsistent with actual tested nicotine content in the pouches.⁵ Studies have also found a range of nicotine in the freebase form, which can increase nicotine absorption and make the products more addictive.⁶ Overall, studies show that some nicotine pouches can deliver similar levels of nicotine as cigarettes or traditional smokeless tobacco products.⁷

Because these products do not contain tobacco leaf, additives are used to create flavors. Flavor options range from minty (i.e., spearmint, wintergreen, cinnamon) to fruity (i.e., citrus, cherry, mango). Some products also use synthetic cooling agents like WS-3, a chemical that may reduce the harshness of nicotine and may enhance the sensory experience of using pouches.⁸ Artificial sweeteners are also added to pouches, even in those marketed as “unflavored,” to mask the harshness of nicotine and make the products easier to use.⁹

Containers typically contain 15 to 20 nicotine pouches. Labeling of nicotine content is not consistent across brands – some brands list the milligrams of nicotine per pouch, while others merely describe the relative strength, such as using symbols or descriptive words like “strong.”¹⁰

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Nicotine Pouch Market in the U.S.

All of the major tobacco companies in the U.S. sell nicotine pouches that use tobacco-derived nicotine and are offered in a range of nicotine strengths and flavors. Other manufacturers also make nicotine pouches using tobacco-derived nicotine or synthetic nicotine.

In the U.S., under the Tobacco Control Act, manufacturers must obtain a marketing authorization from the U.S. Food and Drug Administration (FDA) to sell nicotine pouches, regardless of the nicotine source. To date, FDA has authorized for sale 20 flavored varieties of Zyn¹¹ and 6 flavored varieties of On! PLUS¹² nicotine pouches. In June 2026, FDA authorized Philip Morris International (PMI) to use specific modified risk messaging for those 20 Zyn products.¹³

Sales of nicotine pouches have grown dramatically since their introduction in 2015, with accelerated increases in more recent years. Retail sales data from Circana showed that nicotine pouch sales in traditional retail outlets* more than tripled between January 2023 and December 2025.¹⁴ Goldman Sachs' analysis of Nielsen market data through December 27, 2025 show that nicotine pouches generated \$4.8 billion in sales in the previous 52 weeks. The nicotine pouch category makes up 43% of the smokeless market in dollar sales, and 6.6% of dollar sales of the total tobacco market. Unlike other tobacco product categories that have seen sales declines, smokeless tobacco product sales increased by more than 10% in 2025, driven by nicotine pouches. PMI's Zyn is by far the leading nicotine pouch brand, followed far behind by Altria's On!, Reynolds Americans' Velo, and Swisher's Rogue.¹⁵

As of December 28, 2025, mint-flavored pouches are the most commonly sold flavor, making up 58.8% of the nicotine pouch market, followed by flavors like fruit, spices, and drinks making up 25.2% of the market. Sales of original/smooth flavor made up 9.7% of the market, while clear/other cooling flavors, which likely use synthetic cooling chemicals in attempt to skirt flavor restriction policies, made up 4.0% of the market.¹⁶

During 2021-2024, sales of products with higher levels of nicotine increased most rapidly, though products with 6 mg nicotine was most commonly sold.¹⁷

Awareness and Use of Nicotine Pouches

Youth Use. Although nicotine pouches are relatively new to the market, surveys are already showing concerning trends in youth use. However, national survey data can lag behind local reports, so the number of youth users could well be higher.

- The 2025 National Youth Tobacco Survey (NYTS) data show that 1.7% of middle and high schoolers (460,000 youth) used nicotine pouches in the past 30 days (current use). Use of nicotine pouches among high school students increased significantly between 2022 and 2025.¹⁸
- Almost 30% of youth who use nicotine pouches reported using on 20 or more days/month, and 22.4% reported daily use.¹⁹
- Over 90% of youth pouch users (410,000 youth) use nicotine pouches in flavors other than tobacco. Mint (60.9%) was by far the most popular flavor among youth nicotine pouch users, followed by fruit (25.0%) and menthol (18.1%).²⁰
- Most youth and young adults who use nicotine pouches also currently use other forms of tobacco (multi- or dual use), particularly cigarettes, smokeless tobacco, or e-cigarettes.²¹

Examples of nicotine pouch brands.



* Convenience stores, gas stations, grocery stores, drugstores/pharmacies, mass merchandiser outlets, club stores, dollar stores, and military sales. Excludes Internet sales and sales from tobacco specialty stores like vape shops.

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- A study in southern California found that high schoolers who did not use tobacco were more willing to use oral nicotine products (a category that is dominated by nicotine pouches) than other smokeless tobacco products and showed slight preference for mint- over fruit-flavored products – findings that are reinforced by the 2023 NYTS data. Adolescents who were younger, female, and LGBTQ+ were more willing to use these products compared to their counterparts. Willingness to use tobacco is linked to future initiation.²²
- Teachers and school officials report that nicotine pouches are increasingly being found on school grounds.²³
- Media reports have raised concerns about increasing numbers of high schoolers using nicotine pouches, particularly Zyn.²⁴ Indeed, Zyn is the most popular brand among youth who used nicotine pouches.²⁵ In an announcement about enforcement actions against more than 100 stores for selling flavored Zyn to underage youth, FDA unequivocally stated, “Youth use of any tobacco products, including nicotine pouches, is unsafe.”²⁶

Adult Use. Data on adult use of nicotine pouches is scarce, but generally show low use rates overall and higher rates among younger adults.

- Data from the 2022-2023 Population Assessment of Tobacco and Health (PATH) study showed that 0.82% of adults used nicotine pouches within the past 30 days, with higher odds of use among younger adult age groups compared to the 65+ age group.²⁷ Other national survey data show similar low rates among adults overall, but higher rates among younger adults.²⁸
- Surveys show significant increases in nicotine pouch use among young adults.
 - Data from the International Tobacco Control (ITC) Youth Tobacco and Vaping Survey found a statistically significant increase in nicotine pouch use among U.S. young adults (20-29) between 2022 and 2024, from 2.4% to 7.9%.²⁹
 - The Monitoring the Future survey found that past-year nicotine pouch use rates among young adults (19-30 years old) doubled between 2023 and 2024, from 4.8% to 9.5%.³⁰
- The Tobacco Epidemic Evaluation Network (TEEN+) study found over half (54.5%) of young adults (21-28 years old) reported using 3 or more pouches per day on the days they used nicotine pouches.³¹
- Zyn is the most popular brand used by young adults and adults overall.³²
- Industry data show that most of the people using nicotine pouches are those who use or used other smokeless tobacco products rather than people who switched from smoking.³³

Use by Athletes. Nicotine pouches have largely replaced the traditional spit tobacco products associated with baseball. Major League Baseball players describe using several pouches at a time.³⁴ Professional athletes in other sports have been spotted using nicotine pouches,³⁵ raising the general concern about the promotion of these products to youth who look up to and try to mimic their sports heroes.

Marketing Nicotine Pouches

While the U.S. Federal Trade Commission began collecting data on nicotine pouch sales in 2020 as part of its annual reports on marketing and promotional spending by the major smokeless tobacco companies, the reports do not break out these expenditures for nicotine pouches. A



Hillsborough, NC, 2021. Courtesy of CounterTobacco.org.

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study looking at advertising spending in print magazines, newspapers, TV and radio, outdoor signs, and the internet between January 2018 and April 2020 found that by August 2019, monthly ad spending for oral nicotine products, dominated by nicotine pouches, exceeded that of traditional smokeless tobacco products.³⁶ A separate study found that between January 2019 and September 2021, Swedish Match/Philip Morris International (Zyn), Reynolds American (Velo), and Altria (On!) spent nearly \$25 million on ads for their products. Most of the ads were on the radio or TV, and featured themes such as freedom, innovation, and flavors.³⁷

The impact of nicotine pouch marketing on young people is no different than that of other tobacco product marketing. Studies show increased willingness to try and buy nicotine pouches – specifically Zyn – based on the marketing among youth and young adults.³⁸ Youth expressing that they liked the marketing even “a little bit” was enough to increase the odds of buying Zyn.³⁹

Event Sponsorships. Because nicotine pouches are regulated separately from smokeless tobacco products containing tobacco under the Family Smoking Prevention and Tobacco Control Act, manufacturers can market nicotine pouches in ways that are restricted for traditional smokeless tobacco products. For instance, Swedish Match prominently features Zyn branding, logos, and taglines at sponsored music concerts, and gives away Zyn-branded merchandise, both of which are prohibited for traditional smokeless tobacco products. Brand sponsorships at these types of events broadens the product’s exposure to a larger audience beyond tobacco users.



Zyn Main Stage at the 2023 Big Machine Music City Grand Prix.⁴⁰ Brewco Marketing Group Instagram, March 1, 2024, https://www.instagram.com/p/C3-kGWVrymQ/?img_index=3.



Zyn-branded merchandise at the 2023 Musikfest. Brewco Marketing Group Instagram, August 13, 2023, https://www.instagram.com/p/Cv4omADrrAW/?img_index=3.

Tobacco companies’ sponsorships of sporting events are another way to expose a wide population to these products and create positive associations with the brands.⁴¹ Nicotine pouch brands are participating in many of the same sporting events that traditional smokeless tobacco products have dominated, such as car or motorcycle racing⁴² and bull riding or rodeos.

PMI is sponsoring the Ferrari team⁴³ and British American Tobacco (BAT, parent company of Reynolds American) is sponsoring the McLaren team⁴⁴ for Formula 1 races. Logos for Zyn and Velo are prominently featured on the cars and race suits of these teams’ drivers, and sponsorships are also promoted on social media to hundreds of millions of followers. At the same time, Formula 1 has been partnering with youth-oriented brands, including Disney,⁴⁵ Lego,⁴⁶ and Mattel’s Hot Wheels,⁴⁷ to expand its global youth audience. Formula 1 has touted “a huge surge in growth with younger fans” and that “more than four million children aged 8-12 now actively follow the sport across the EU and US, while 54% of followers on TikTok and 40% on Instagram are now under 25 years old.”⁴⁸

In addition to sponsoring Kaulig Racing team cars and trucks,⁴⁹ Reynolds American’s Grizzly Nicotine Pouches is an official sponsor of NASCAR and NASCAR-Owned tracks, allowing it to display brand logos on

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racetracks and name racetrack campgrounds.⁵⁰ ITG Brands' Zone also sponsors a car in the NASCAR Cup Series.⁵¹ The brand logos are prominently displayed on the front hood and sides of the cars and visible by viewers of all ages attending the races and watching on television. Grizzly Nicotine Pouches and Fre nicotine pouches are partners for Professional Bull Riders events.⁵²

Social Media. These products are pervasive on social media, either driven by tobacco companies or in more organic ways. A 2023 report by the Campaign for Tobacco-Free Kids, *#SponsoredbyBigTobacco: Tobacco & Nicotine Marketing on Social Media*, documented how British American Tobacco's social media marketing of its Velo nicotine pouch product reached an estimated 252 million people in 32 countries, including the United States, with 39% of the audience under the age of 25, including over 10 million teens worldwide, between January 2018 and October 2023.⁵³

TikTok, a platform popular with youth and young adults, is inundated with videos of young people using nicotine pouches, which garner millions of views and shares. They are often humorous and portray the products in a positive light, but few posts have the warning messages that ads for nicotine pouches are legally required to include.⁵⁴ For instance, posts by so-called "Zynfluencers" are visible to almost anyone, and the use of popular hashtags make Zyn-related content easy to find.

Youth and young adults who see tobacco content on social media, particularly posts by celebrities and influencers, have a higher susceptibility to trying tobacco products and higher odds of lifetime use of tobacco products.⁵⁵

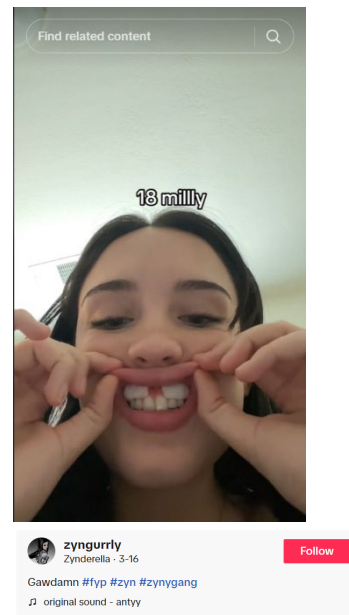
Marketing Themes. Some prominent themes used to market nicotine pouches include freedom, "clean," and wellness.

The theme of freedom echoes messaging that smokeless tobacco companies have used for decades. Many companies show nicotine pouches as products that can be used by smokers in places where smoking is not allowed, for example, on an airplane.⁵⁶ Altria and Reynolds American have run advertisements of their pouch products alongside their cigarettes, such as a banner ad for On! on the Marlboro cigarette website or combining Velo and Camel cigarettes in direct email.⁵⁷ This type of cross-promotion and messages of freedom or convenience encourages smokers to dual (or poly)-use products by using these smokeless products in certain situations but continuing to smoke otherwise, rather than switching completely to pouches or quitting smoking altogether. Studies showing prevalent dual use among those who use nicotine pouches indicate that this strategy is working.⁵⁸

Some companies making nicotine pouches with tobacco-derived nicotine advertise these products as "tobacco-free" because they do not contain tobacco leaf. For instance, Zyn uses the tagline "tobacco-free nicotine pouches" and claims on its website that the products provide a "cleaner nicotine experience."⁵⁹ At the same time, some synthetic nicotine products are also marketed as "tobacco-free" because they claim to use nicotine derived from non-tobacco sources. Research shows that, for synthetic nicotine pouches



Twitter/X, July 2, 2023,
<https://tinyurl.com/2p9kkf66>.



Tik Tok, March 16, 2024,
<https://tinyurl.com/2unadmhf>.

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particularly, the term “tobacco-free” reduces risk perceptions, which can increase the appeal of and intentions to use these products, particularly among susceptible populations like young people.⁶⁰

Claims about the benefits of nicotine are being used to promote nicotine pouches to people interested in wellness, fitness, or productivity. Social media influencers post about using nicotine pouches as part of their workout routines.⁶¹ One brand seemingly targets athletes by making unsubstantiated claims about “peak performance” and “mental clarity,” and is endorsed by celebrities and athletes.⁶² News stories highlight companies providing nicotine pouches to employees to encourage productivity.⁶³ However, there is limited evidence to support recreational use of nicotine to benefit overall cognitive function⁶⁴ and this type of messaging risks encouraging nonusers, including young people, to start using these products.

Advertising that highlights product features such as flavors, convenience of use, and discreet properties of nicotine pouches has increased over time. These are all characteristics that can appeal to youth, who are generally nicotine-naïve and may be looking for products that are easy to use and conceal.⁶⁵

Rewards Programs. All of the major companies have generous rewards programs tied to their nicotine pouch products. Zyn Rewards allows people to redeem points acquired from purchases for iPads, Apple Watches, Dyson hair stylers, and previously, Zyn-branded items like towels.⁶⁶ Zyn has offered tickets to exclusive concerts for popular musicians like Noah Kahan or Lainey Wilson for 3,000 points. A post about the Noah Kahan concert on a country music Instagram account evoked comments from non-Zyn users wanting to buy Zyn just to attend the concert.⁶⁷

These types of loyalty or continuity programs can encourage repeat purchases and some offer large point incentives to recruit additional registrants, including new users. Indeed, data presented by PMI to investors shows that Zyn rewards members consume more cans of Zyn per week than non-reward members.⁶⁸ One study found many social media posts about prizes obtained through these reward programs by young women, a potentially new customer base for these products.⁶⁹ Other studies have documented how rewards programs from cigarette companies, like “Camel Cash” and “Marlboro Miles,” that require people to collect points through purchases and redeem them for products are particularly successful in capturing the loyalty of youth, incentivizing them to experiment with cigarettes, progress to regular smoking, and smoke more.⁷⁰

Health Risks Associated with Nicotine Pouches

Because pouches don’t contain tobacco leaf, there may be differences in health harms from traditional smokeless tobacco products. Although the tobacco industry markets emerging nicotine products as “clean” and “reduced-harm” products, the short- and long-term health impacts of nicotine pouches are unknown.⁷¹ They have not been on the market long enough to be extensively studied under real-world conditions, and there is very little independent evidence demonstrating that these products have resulted in or encouraged complete switching among adults who smoke. The majority of currently available evidence on potential health effects is industry-funded, and the tobacco industry has a long history of funding research to support its business objectives.⁷²

The nicotine in the pouches raises particular concern for addiction and harm to pregnant women and adolescents. Nicotine exposure during adolescence can harm the developing brain which continues to develop until about age 25. Nicotine exposure during adolescence can impact learning, memory, and attention.⁷³ Nicotine can also prime the brain for addiction to other drugs.⁷⁴ The U.S. Surgeon General concluded that “The use of products containing nicotine in any form among youth, including in e-cigarettes, is unsafe.”⁷⁵ There is not enough evidence to recommend nicotine pouches for smoking cessation.⁷⁶

Nicotine exposure can be toxic to young children, causing vomiting, seizures, respiratory failure, and even death. Reports of unintended nicotine ingestion from nicotine pouches by children under 6 years old skyrocketed by 763.1% between 2020 and 2023. Furthermore, these nicotine pouch ingestions were more

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likely to be associated with serious medical outcomes or admissions to medical facilities compared to nicotine ingestion through other products.⁷⁷

While levels of some toxicants in nicotine pouches may be lower than in cigarettes and smokeless tobacco, some studies have found levels of formaldehyde in nicotine pouches comparable to cigarettes and smokeless tobacco.⁷⁸ Patterns of use may also impact health risks. For instance, more than a quarter of young adults who use nicotine pouches report using at least two pouches simultaneously,⁷⁹ which means that research on pouch contents or single pouches may not provide a true representation of exposure to nicotine and toxicants.

Other reported side effects from using nicotine pouches include gum irritation, and researchers have raised concerns about other constituents in the pouches potentially causing other oral health problems.⁸⁰

Further research on the long- and short-term effects of nicotine pouch use and the effects on cessation and initiation of tobacco products is required to better understand their effects at an individual and population public health level.

Regulating Nicotine Pouches

Nicotine pouches (regardless of the source of nicotine) are regulated by FDA and are subject to requirements such as submitting premarket review applications. FDA is currently reviewing applications for nicotine pouches submitted by major tobacco companies, and the agency has not taken enforcement actions against nicotine pouches with pending applications.

States should make sure that nicotine pouches are included in state definitions for tobacco products or smokeless tobacco products so that state tobacco policies, including excise taxes and sales restrictions on flavored products, will apply to them.

¹ Page, MK, et al., "Comparison of Nicotine and Selected Flavorings Content Between Tobacco-Free and Tobacco-Containing Oral Pouches," *Nicotine & Tobacco Research*, online ahead of print, ntaf105, doi: 10.1093/ntr/ntaf105, May 19, 2025.

² Jordt, SE & Jabba SV, "Introduction of nicotine analogue-containing oral pouch products in the United States," *Tobacco Prevention & Cessation* 10(November):61, 2024.

³ Page, MK, et al., "Comparison of Nicotine and Selected Flavorings Content Between Tobacco-Free and Tobacco-Containing Oral Pouches," *Nicotine & Tobacco Research*, online ahead of print, ntaf105, doi: 10.1093/ntr/ntaf105, May 19, 2025.

⁴ World Health Organization (WHO) study group on tobacco product regulation, *Report on the scientific basis of tobacco product regulation: ninth report of a WHO study group*, WHO Technical Report Series, No. 1047, 2023, <https://iris.who.int/bitstream/handle/10665/372463/9789240079410-eng.pdf?sequence=1>.

⁵ Mallock, N, et al., "Levels of nicotine and tobacco-specific nitrosamines in oral nicotine pouches," *Tobacco Control* 33(2):193-199, 2024, doi: 10.1136/tc-2022-057280. Tran, H, et al., "Total and unprotonated (freebase) nicotine content in new types of oral 'tobacco-free' nicotine products," *Tobacco Control*, published online first, November 14, 2024, doi:10.1136/tc-2024-058914. Page, MK, et al., "Comparison of Nicotine and Selected Flavorings Content Between Tobacco-Free and Tobacco-Containing Oral Pouches," *Nicotine & Tobacco Research*, online ahead of print, ntaf105, doi: 10.1093/ntr/ntaf105, May 19, 2025.

⁶ Stanfill, S, et al., "Characterization of Total and Unprotonated (Free) Nicotine Content of Nicotine Pouch Products," *Nicotine & Tobacco Research* 23(9):1590-1596, 2021, doi: 10.1093/ntr/ntab030. Page, MK, et al., "Comparison of Nicotine and Selected Flavorings Content Between Tobacco-Free and Tobacco-Containing Oral Pouches," *Nicotine & Tobacco Research*, online ahead of print, ntaf105, doi: 10.1093/ntr/ntaf105, May 19, 2025.

⁷ Travis, N, et al., "The Potential Impact of Oral Nicotine Pouches on Public Health: A Scoping Review," *Nicotine & Tobacco Research*, advanced access, June 17, 2024, <https://doi.org/10.1093/ntr/ntae131>.

⁸ Jabba, SV, et al., "Synthetic cooling agent in oral nicotine pouch products marketed as 'Flavour-Ban Approved,'" *Tobacco Control*, Online ahead of print, June 28, 2023, doi: 10.1136/tc-2023-058035.

⁹ Jabba, SV, et al., "Artificial Sweeteners in US-Marketed Oral Nicotine Pouch Products: Correlation with Nicotine Contents and Effects on Product Preference," *bioRxiv* 2024.01.26.577472; doi: <https://doi.org/10.1101/2024.01.26.577472>. Page, MK, et al., "Comparison of Nicotine and Selected Flavorings Content Between Tobacco-Free and Tobacco-Containing Oral Pouches," *Nicotine & Tobacco Research*, online ahead of print, ntaf105, doi: 10.1093/ntr/ntaf105, May 19, 2025.

¹⁰ World Health Organization (WHO) study group on tobacco product regulation, *Report on the scientific basis of tobacco product regulation: ninth report of a WHO study group*, WHO Technical Report Series, No. 1047, 2023, <https://iris.who.int/bitstream/handle/10665/372463/9789240079410-eng.pdf?sequence=1>.

¹¹ U.S. Food and Drug Administration (FDA), FDA Authorizes Marketing of 20 ZYN Nicotine Pouch Products after Extensive Scientific Review, January 16, 2025, <https://www.fda.gov/news-events/press-announcements/fda-authorizes-marketing-20-zyn-nicotine-pouch-products-after-extensive-scientific-review>.

¹² FDA, FDA Authorizes 6 Nicotine Pouch Products, Completing Review in Record Time, December 19, 2025, <https://www.fda.gov/tobacco-products/ctp-newsroom/fda-authorizes-6-nicotine-pouch-products-completing-review-record-time>.

- ¹³ FDA, FDA Authorizes 20 ZYN Nicotine Pouches to Be Marketed with Specific Modified Risk Claim, June 30, 2026, <https://www.fda.gov/tobacco-products/ctp-newsroom/fda-authorizes-20-zyn-nicotine-pouches-be-marketed-specific-modified-risk-claim>.
- ¹⁴ CDC Foundation, "Monitoring Sales: Nicotine Pouch Trends," April 2026, https://tobacomonitoring.org/wp-content/uploads/2026/04/Nicotine-Pouch-Sales-Data-Brief_April-2026_Final-to-publish-1.pdf. Data from Circana, which includes e-cigarette sales data from convenience stores, gas stations and other retail store chains. Sales from the internet and tobacco-specialty stores, including vape shops, are not included.
- ¹⁵ Goldman Sachs, *Americas Tobacco: NielsenIQ Data thru 12/27: Total nicotine sales decline slightly in L2wks*, January 6, 2026.
- ¹⁶ CDC Foundation, "Monitoring Sales: Nicotine Pouch Trends," April 2026, https://tobacomonitoring.org/wp-content/uploads/2026/04/Nicotine-Pouch-Sales-Data-Brief_April-2026_Final-to-publish-1.pdf. Data from Circana, which includes e-cigarette sales data from convenience stores, gas stations and other retail store chains. Sales from the internet and tobacco-specialty stores, including vape shops, are not included.
- ¹⁷ He, Y, et al., "Trends of oral nicotine pouch prices and sales by product characteristics in the USA, 2021-2024," *Tobacco Control*, published online first, doi:10.1136/tc-2024-059222, June 12, 2025.
- ¹⁸ Park-Lee, E, et al., "Tobacco product use among middle and high school students in the United States: National Youth Tobacco Survey, 2025, *Nicotine & Tobacco Research*, Published online ahead of print, June 23, 2026, <https://doi.org/10.1093/ntr/ntag116>.
- ¹⁹ Park-Lee, E, et al., "E-Cigarette and Nicotine Pouch Use Among Middle and High School Students — United States, 2024," *Morbidity and Mortality Weekly Report (MMWR)* 73(35):774-778, September 5, 2024, <https://www.cdc.gov/mmwr/volumes/73/wr/pdfs/mm7335a3-H.pdf>.
- ²⁰ Park-Lee, E, et al., "Tobacco product use among middle and high school students in the United States: National Youth Tobacco Survey, 2025, *Nicotine & Tobacco Research*, Published online ahead of print, June 23, 2026, <https://doi.org/10.1093/ntr/ntag116>.
- ²¹ CDC Foundation. (2025). Monitoring Tobacco Product Use Among Youth and Young Adults in the U.S. TEEN+ Data Brief, Issue 4. https://tobacomonitoring.org/wp-content/uploads/2026/05/TEENDataBriefIssue4_051126.pdf. Glantz, SA, "Tobacco Use Among Middle and High School Students: 2025 National Youth Tobacco Survey," *Pediatrics*, Published online first, June 30, 2026, 10.1542/peds.2026-077008. Kramer, RD, et al., "Nicotine Pouch Awareness and Use Among Youth, National Youth Tobacco Survey, 2021," *Nicotine & Tobacco Research* 25(9):1610-1613, 2023, doi: 10.1093/ntr/ntad080. Patel, M, et al., "Patterns of oral nicotine pouch use among U.S. adolescents and young adults," *Preventive Medicine Reports* 34:102239, 2023, doi: 10.1016/j.pmedr.2023.102239. Palmer, AM, et al., "Nicotine Pouch Use in Youths and Adults Who Use Cigarettes, E-Cigarettes, and Smokeless Tobacco," *JAMA Network Open* 8(5):e2511630, doi:10.1001/jamanetworkopen.2025.11630, 2025.
- ²² Tackett, AP, et al., "Willingness to Use Commercial Nicotine Gums, Lozenges, and Gummies Among Nontobacco Using Adolescents in Southern California," *Journal of Adolescent Health* 2(2):277-286, 2023, doi: 10.1016/j.jadohealth.2022.09.027.
- ²³ Truth Initiative, "It's Everywhere" Middle and high school educator perspectives on nicotine use in schools, September 2025, <https://truthinitiative.org/sites/default/files/media/files/2025/09/Educator%20Perspectives%202025.pdf>.
- ²⁴ Dreyfuss, E, "Our kids are living in a different digital world," *The New York Times*, January 12, 2024, <https://www.nytimes.com/2024/01/12/opinion/children-nicotine-zyn-social-media.html>.
- ²⁵ Park-Lee, E, et al., "Tobacco product use among middle and high school students in the United States: National Youth Tobacco Survey, 2025, *Nicotine & Tobacco Research*, Published online ahead of print, June 23, 2026, <https://doi.org/10.1093/ntr/ntag116>.
- ²⁶ U.S. Food and Drug Administration (FDA), *FDA Issues Warning Letters to and Files Civil Money Penalty Complaints Against Retailers for Underage Sales of ZYN Nicotine Pouches*, April 4, 2024, <https://www.fda.gov/tobacco-products/ctp-newsroom/fda-issues-warning-letters-and-files-civil-money-penalty-complaints-against-retailers-underage-sales>.
- ²⁷ Palmer, AM, et al., "Nicotine Pouch Use in Youths and Adults Who Use Cigarettes, E-Cigarettes, and Smokeless Tobacco," *JAMA Network Open* 8(5):e2511630, 2025, doi:10.1001/jamanetworkopen.2025.11630.
- ²⁸ Dai, HD & Leventhal, AM, "Prevalence of Nicotine Pouch Use Among US Adults," *JAMA* 332(9):755-757, 2024, doi: 10.1001/jama.2024.10686.
- ²⁹ Reid, JL, et al., "Awareness and use of oral nicotine pouches among youth and young adults, 2022-2024: repeat cross-sectional surveys in Canada, England, the USA and New Zealand," Supplemental Table S4, *BMJ Public Health* 3:e003457, 2025, <https://doi.org/10.1136/bmjph-2025-003457>.
- ³⁰ University of Michigan, Nicotine pouch, cannabis, vaping, psychedelic use on the rise among US adults, August 26, 2025, <https://news.umich.edu/nicotine-pouch-cannabis-vaping-psychedelic-use-on-the-rise-among-us-adults/>.
- ³¹ CDC Foundation. (2025). Monitoring Tobacco Product Use Among Youth and Young Adults in the U.S. TEEN+ Data Brief, Issue 4. https://tobacomonitoring.org/wp-content/uploads/2026/05/TEENDataBriefIssue4_051126.pdf.
- ³² CDC Foundation. (2025). Monitoring Tobacco Product Use Among Youth and Young Adults in the U.S. TEEN+ Data Brief, Issue 4. https://tobacomonitoring.org/wp-content/uploads/2026/05/TEENDataBriefIssue4_051126.pdf. Liu, J & Halpern-Felsher, B, "Popularity of Zyn and other nicotine pouch brands among U.S. adolescents, young adults, and adults in 2021," *Preventive Medicine* 185:108068, 2024, doi: 10.1016/j.ypmed.2024.108068.
- ³³ PMI, CAGNY Conference, February 21, 2024, <https://philipmorrisinternational.gcs-web.com/static-files/02acf04a-b35c-48a1-9dc4-457f3e6ca097>, slide 25 showing that 36% of Zyn users primarily used traditional oral tobacco products, compared to 20% of those who smoked cigarettes and 25% of those who used e-cigarettes. "We believe oral nicotine is taking most of its share from traditional smokeless tobacco, but is also benefiting from increased poly-usage across nicotine categories." Goldman Sachs, *Americas Tobacco: Nielsen Data thru 12/4: Total nicotine volume pressure continues as pricing holds strong*, December 14, 2021. "...the [oral nicotine] category continues to take share, especially from traditional moist snuff." Goldman Sachs, *Americas Tobacco: "Nicotine Nuggets" Q3 survey - Cautious outlook as downtrading & value-seeking behavior prevail*, October 18, 2023.
- ³⁴ Mintz, J, "MLB players turning to nicotine pouches amid tobacco bans," *FOX Sports*, March 3, 2023, <https://www.foxsports.com/stories/mlb/mlb-players-turning-to-nicotine-pouches-amid-tobacco-bans>.
- ³⁵ Curtis, C, "The Baker Mayfield and ZYN nicotine pouches controversy, explained," *Yahoo! Sports*, October 25, 2024, <https://sports.yahoo.com/baker-mayfield-zyn-nicotine-pouches-123039107.html>.
- ³⁶ Emery, S, "Characterising advertising strategies and expenditures for conventional and newer smokeless tobacco products," *Tobacco Control* 32(6):795-798, 2023, doi: 10.1136/tobaccocontrol-2022-057282.
- ³⁷ Duan, Z, et al., "Nicotine pouch marketing strategies in the USA: an analysis of Zyn, On! and Velo," *Tobacco Control*, Published Online First: 11 July 2022, doi: 10.1136/tc-2022-057360.
- ³⁸ Vogel, EA, et al., "Differences in Young Adults' Perceptions of and Willingness to Use Nicotine Pouches by Tobacco Use Status," *International Journal of Environmental Research and Public Health* 19(5):2685, 2023, doi: 10.3390/ijerph19052685. Gaiha, SM, et al., "Use, marketing, and appeal of oral nicotine products among adolescents, young adults, and adults," *Addictive Behaviors* 140:107632, 2023, doi: 10.1016/j.addbeh.2023.107632.

- 39 Gaiha, SM, et al., "Use, marketing, and appeal of oral nicotine products among adolescents, young adults, and adults," *Addictive Behaviors* 140:107632, 2023, doi: 10.1016/j.addbeh.2023.107632.
- 40 Big Machine Music City Grand Prix, *Superstar Flo Rida to Headline Saturday Evening Concert on the Zyn Main Stage*, Press Release, April 19, 2023, <https://musiccitygp.com/sound-speed-merge-as-the-big-machine-music-city-grand-prix-reveals-musical-lineup-for-nashvilles-indycar-race-weekend-2/>.
- 41 Sun, T & Tattan-Birch, H, "Sports, Gigs, and TikToks: Multichannel Advertising of Oral Nicotine Pouches," *Nicotine & Tobacco Research*, online ahead of print, August 27, 2024, doi: 10.1093/ntr/ntae188.
- 42 Talbot, EM, et al., "Nicotine pouch brands: the new route of auto racing sponsorships worldwide," *Tobacco Control*, Online ahead of print, July 30, 2025, <https://doi.org/10.1136/tc-2025-059516>.
- 43 PMI, Philip Morris International Expands its Partnership with Scuderia Ferrari HP, Launching a Bold New Chapter in Their Long-Standing Relationship, December 3, 2025, <https://www.pmi.com/media-center/press-releases/press-details?newsId=29431>.
- 44 "Arrow McLaren Geared Up for 2025 with Full-Season Livery Reveal," February 27, 2025, <https://www.mclaren.com/racing/indycar/2025/arrow-mclaren-geared-up-for-2025-with-full-season-livery-reveal/>.
- 45 Disney, Disney and Formula 1® Fuel the Magic for the 2026 Race Season with All New Ways for Fans to Engage with Disney's Mickey & Friends across Content, Products and Experiences, February 26, 2026, <https://thewaltdisneycompany.com/news/formula-1-2026-season/>.
- 46 Formula 1, Formula 1 and The LEGO Group build partnership from 2025, September 18, 2024, <https://www.formula1.com/en/latest/article/formula-1-and-lego-group-build-partnership-from-2025.6jIHhyRO2uLh8wK7Uzi4iB>.
- 47 Formula 1, New Hot Wheels collection unveiled featuring several F1 teams' cars, January 24, 2025, <https://www.formula1.com/en/latest/article/new-hot-wheels-collection-unveiled-featuring-several-f1-teams-cars.70b1YGZSALmWxWaO3aY0ni>.
- 48 Formula 1, Formula 1 and The LEGO Group build partnership from 2025, September 18, 2024, <https://www.formula1.com/en/latest/article/formula-1-and-lego-group-build-partnership-from-2025.6jIHhyRO2uLh8wK7Uzi4iB>.
- 49 Kaulig Racing, Grizzly Nicotine Pouches Expands Partnership With Kaulig Racing, May 18, 2026, <https://www.kauligracing.com/news/2026/may/18/grizzly-nicotine-pouches-expands-partnership-with-kaulig-racing>.
- 50 Catchfence.com, Grizzly Nicotine Pouches Joins NASCAR® as Official Partner and Official Partner of NASCAR®-Owned Tracks, January 22, 2026, <https://catchfence.com/index.php/cup-series/nascar-cup-series-news/475000-grizzly-nicotine-pouches-joins-nascar-as-official-partner-and-official-partner-of-nascar-owned-tracks/>.
- 51 "Richard Childress Racing Announces Partnership with zone," January 18, 2024, <https://www.rcrracing.com/news-media/drivers/kyle-busch/2024/01/18/richard-childress-racing-announces-partnership-with-zone/>.
- 52 "FRE Nicotine Pouches Partners with PBR in the Brand's Largest-Ever Sports Sponsorship," *Globe Newswire*, July 2, 2025, <https://www.globenewswire.com/news-release/2025/07/02/3109202/0/en/FRE-Nicotine-Pouches-Partners-with-PBR-in-the-Brand-s-Largest-Ever-Sports-Sponsorship.html>. PBR, National Partners, accessed October 16, 2025, <https://www.pbr.com/sponsors/>.
- 53 Campaign for Tobacco-Free Kids, *#SponsoredByBigTobacco: Tobacco & Nicotine Marketing on Social Media*, December 8, 2023, https://assets.tobaccofreekids.org/content/what_we_do/industry_watch/social-media-marketing-tactics/2023_12_08_SponsoredByBigTobacco.pdf.
- 54 Sun, T & Tattan-Birch, H, "Sports, Gigs, and TikToks: Multichannel Advertising of Oral Nicotine Pouches," *Nicotine & Tobacco Research*, online ahead of print, August 27, 2024, doi: 10.1093/ntr/ntae188. Donaldson, SI, et al., "Describing ZYN-Related Content on TikTok: Content Analysis," *Nicotine & Tobacco Research*, online ahead of print, January 17, 2025, doi: 10.1093/ntr/ntaf016. Zenone, M, Harries, B, & Hartwell, G, "The Promotion of Oral Nicotine Pouches for Non-Smoking Cessation Purposes on TikTok," *Nicotine & Tobacco Research*, online ahead of print, January 29, 2025, doi: 10.1093/ntr/ntaf024.
- 55 Donaldson, SI, et al., "Association Between Exposure to Tobacco Content on Social Media and Tobacco Use: A Systematic Review and Meta-analysis," *JAMA Pediatrics* 176(9):878-885, 2022. Lim, CCW, et al., "Swipe to Inhale: Tobacco-Related Content on Social Media and Susceptibility to Tobacco Use," *American Journal of Preventive Medicine* 67(6):968-972, 2024.
- 56 Ling, PM, et al., "Tobacco-Derived Nicotine Pouch Brands and Marketing Messages on Internet and Traditional Media: Content Analysis," *JMIR Formative Research* 7:e39146, 2023.
- 57 Talbot, E, et al., "Cross-promotion of nicotine pouches by leading cigarette brands," *Tobacco Control*, 32(4):528-529, 2023, doi: 10.1136/tobaccocontrol-2021-056899.
- 58 Dowd, AN, et al., "A Cross-Sectional Survey on Oral Nicotine Pouches: Characterizing Use-Motives, Topography, Dependence Levels, and Adverse Events," *Nicotine & Tobacco Research*, advance access September 15, 2023, <https://doi.org/10.1093/ntr/ntad179>.
- 59 Zyn, "Why Zyn," accessed February 2, 2024 from <https://us.zyn.com/why-zyn/>.
- 60 Morean, ME, et al., "'Tobacco-free' Nicotine Pouches: Risk Perceptions, Awareness, Susceptibility, and Use Among Young Adults in the United States," *Nicotine & Tobacco Research* 25(1):143-150, 2023, doi: 10.1093/ntr/ntac204. Morean, ME, et al., "Including the term 'tobacco-free nicotine' in the nicotine addiction warning label mandated by the US Food and Drug Administration alters risk perceptions and use intentions," *Tobacco Control*, Online ahead of print, October 28, 2023, doi: 10.1136/tc-2023-058133.
- 61 Borowiecki, M, et al., "'Here is my stack': complementary promotion of nicotine and 'productivity' pouches on social media," *Tobacco Control*, Advance online publication, June 3, 2026, <https://doi.org/10.1136/tc-2026-060133>. Todd, S, "Biohackers and wellness influencers are pushing nicotine as part of their 'stacks,'" *STAT News*, February 20, 2026, <https://www.statnews.com/2026/02/20/nicotine-wellness-startups-productivity-boost-legal-gray-area/>.
- 62 Mead-Morse, EL, et al., "'Fuel your peak performance': marketing of nicotine pouches to athletes," *Tobacco Control*, Published Online First, September 17, 2025, doi: 10.1136/tc-2025-059655.
- 63 Au-Yeung, A, "Tech Startups Are Handing Out Free Nicotine Pouches to Boost Productivity," *Wall Street Journal*, December 30, 2025, <https://www.wsj.com/tech/tech-startups-are-handing-out-free-nicotine-pouches-to-boost-productivity-e42d3cbe>.
- 64 Newhouse, PA, et al., "Effects of nicotinic stimulation on cognitive performance," *Current Opinion in Pharmacology* 4(1):36-46, 2004, doi: 10.1016/j.coph.2003.11.001.
- 65 Czaplicki, L, et al., "Content analysis of marketing features in US nicotine pouch ads from 2021 to 2023," *Tobacco Control*, published online first, December 3, 2024, doi: 10.1136/tc-2024-059010.
- 66 Li, J, "Forget airline miles—Gen Z and millennials are obsessed with nicotine pouch Zyn's lucrative rewards program, which includes \$400 Apple watches and \$600 Dyson AirWraps," *Fortune*, May 11, 2024, <https://fortune.com/2024/05/11/zyn-rewards-nicotine-pouch-prizes-millennial-gen-z/>.
- 67 Country Hub Instagram post, February 23, 2025, https://www.instagram.com/countryhub/p/DGbAhq6PUW8/?hl=en&img_index=1.
- 68 PMI, *Introduction to PMI U.S. Management Team*, NYSE Investor Meeting, September 24, 2024, Slide 13, <https://philipmorrisinternational.qcs-web.com/static-files/3160d05d-1b9d-488b-a691-2dad7e10b1c2>.

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- ⁶⁹ Dobbs, PD, et al., "'Cashing in' nicotine pouches for prizes," *Tobacco Control*, Published Online First, June 15, 2024, doi: 10.1136/tc-2024-05869.
- ⁷⁰ Richards, Jr., J, et al., "RJ Reynolds' 'Camel Cash': another way to reach kids," *Tobacco Control* 4:258-260, 1995. Feighery, E, et al., "Seeing, wanting, owning: the relationship between receptivity to tobacco marketing and smoking susceptibility in young people," *Tobacco Control* 7:123-128, 1998.
- ⁷¹ Dennison Himmelfarb, CR, et al., "Impact of Smokeless Oral Nicotine Products on Cardiovascular Disease: Implications for Policy, Prevention, and Treatment: A Policy Statement From the American Heart Association," *Circulation* 151(1):e1-e21, 2025, doi: 10.1161/CIR.0000000000001293.
- ⁷² European Environment Agency, "Chapter 7: Tobacco industry manipulation of research," *Late Lessons from Early Warnings: Science, Precaution, Innovation*, January 22, 2013, <https://www.eea.europa.eu/publications/late-lessons-2/late-lessons-chapters/late-lessons-ii-chapter-7/view>.
- ⁷³ U.S. Department of Health and Human Services (HHS), *E-Cigarette Use Among Youth and Young Adults. A Report of the Surgeon General*, Atlanta, GA: HHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016, at 106-107.
- ⁷⁴ Yuan, M, et al., "Nicotine and the adolescent brain," *Journal of Physiology* 593.16:3397-3412, 2015.
- ⁷⁵ HHS, *E-Cigarette Use Among Youth and Young Adults. A Report of the Surgeon General*, 2016, at 5.
- ⁷⁶ Cochrane Database of Systematic reviews, *Oral nicotine pouches for cessation or reduction of use of other tobacco or nicotine products*, October 24, 2025, <https://doi.org/10.1002/14651858.CD016220.pub2>.
- ⁷⁷ Olivas, M, et al., "Nicotine Ingestions Among Young Children: 2010-2023," *Pediatrics* 156(2):e2024070522, doi: 10.1542/peds.2024-070522, 2025.
- ⁷⁸ Travis, N, et al., "The Potential Impact of Oral Nicotine Pouches on Public Health: A Scoping Review," *Nicotine & Tobacco Research*, advanced access, June 17, 2024, <https://doi.org/10.1093/ntr/ntae131>.
- ⁷⁹ CDC Foundation. (2025). Monitoring Tobacco Product Use Among Youth and Young Adults in the U.S. TEEN+ Data Brief, Issue 4. https://tobaccomonitoring.org/wp-content/uploads/2026/05/TEENDataBriefIssue4_051126.pdf. See also, Yuen, C, "What are the Zyn nicotine pouches going viral on TikTok?," *9 News*, March 26, 2024, <https://www.9news.com/article/news/health/zyn-nicotine-pouches-popular-teens/73-6fc24896-8f6c-4963-b214-df542eb6d77c>. Skolny, J, "ZYNs are buzzing: The rise of nicotine pouches at Miami," *The Miami Student*, March 4, 2024, <https://www.miamistudent.net/article/2024/03/zyns-are-buzzing-the-rise-of-nicotine-pouches-at-miami>.
- ⁸⁰ Ye, D & Rahman, I, "Emerging Oral Nicotine Products and Periodontal Diseases," *International Journal of Dentistry* 2023:9437475, 2023.