
Treating Spit Tobacco (ST) Dependence: What You Need to Know as a Primary Care Provider

Demographics of ST Use

Spit tobacco (ST) includes both chewing tobacco and moist ground tobacco, known as snuff. In the United States, revenue from the sale of ST has increased steadily since 1985. In 1999, sales exceeded \$1.94 billion. ST use is more prevalent in rural areas than in urban areas. The highest prevalence of ST use is found among white males between the ages of 18 and 25.

Health Risks of ST Use

The nicotine derived from ST acts as a powerful reinforcer with significant abuse potential. Long-term ST use is known to increase the risk of oral leukoplakia (white precancerous changes) and periodontal disease. ST use may increase the risk for cancer of the oropharynx, esophagus, larynx, stomach, and pancreas. ST use is associated with risk factors for cardiovascular disease, such as high blood pressure and elevated serum cholesterol concentrations. In laboratory rat models, extract from ST has been shown to have adverse effects on fetal viability and development.

ST Abstinence and Nicotine Withdrawal

Signs and symptoms of nicotine withdrawal have been reported to occur in ST users. In a population-based sample of daily ST users aged 10 to 22 years who attempted to stop using, 41% reported difficulty concentrating, 39% hunger, 63% irritability, 85% urges to use, 55% restlessness, and 9% symptoms of depression. In a clinical trial evaluating the efficacy of nicotine gum for the treatment of ST users, subjects in the placebo group had withdrawal symptoms that were equal in number and severity to a similar population of abstaining cigarette smokers. Understanding and addressing withdrawal symptoms in ST users is an important component of ST dependence treatment.

Assessing ST Dependence

ST dependence can be assessed clinically by using the following scale:

Item	Answers	Points
1. How soon after you wake up to do you place your first dip?	Within 5 minutes	3
	6 – 30 minutes	2
	31 – 60 minutes	1
	After 60 minutes	0
2. How often do you intentionally swallow tobacco juice?	Always	2
	Sometimes	1
	Never	0
3. Which chew would you hate to give up most?	The first one in the morning	1
	Any other	0
4. How many cans/pouches per week do you use?	More than 3	2
	2 – 3	1
	1	0
5. Do you chew more frequently during the first hours after awakening than during the rest of the day?	Yes	1
	No	0
6. Do you chew if you are so ill that you are in bed most of the day?	Yes	1
	No	0

Clinical Trials of Treatment for ST Use

Sixty-four percent of ST users report the desire to quit. Published studies of treatments for ST use have included behavioral interventions, nicotine replacement therapy (NRT), and bupropion SR.

Three published randomized, double-blinded, placebo-controlled trials of NRT in ST users (2 nicotine patches and 1 nicotine gum) have not demonstrated increased abstinence rates compared to placebo at 6 or 12 months. In one of these studies, 402 ST users were randomized to an active nicotine patch dose of 21 mg/d versus placebo. ST abstinence rates in the active patch versus placebo group were significantly different only at week 10 ($P = .006$). However, compared to placebo, nicotine patch therapy was associated with a significant reduction in symptoms of nicotine withdrawal, including craving, irritability, frustration, anger, difficulty concentrating, restlessness, impatience, increased appetite, and depressed mood.

Two recent pilot studies have been published assessing the efficacy of bupropion for ST use. Combining the results of both studies suggests that bupropion doubles the odds of ST abstinence at 3 months. Larger randomized trials are required to establish the efficacy of bupropion SR for increasing ST long-term abstinence.

Recommendations

The FDA has not approved any medications specifically for the treatment of ST use. We recommend treating ST users with many of the same behavioral and pharmacologic approaches used for cigarette smokers. We recommend the following approach:

1. **Setting a stop day:** ST users should establish a stop day just like smokers and plan to stop all tobacco products on that day. In preparation for their stop day, they may taper the amount they use or switch to a brand that delivers less nicotine.
2. **NRT:** Dosing can be based on the amount of ST used/week as follows:

Nicotine Patch

- **If > 3 cans or pouches of tobacco per week:** 42 mg patch dose daily for 4-6 weeks. Taper dose in 7-14 mg steps every 2-4 weeks based on patient's report of withdrawal symptoms, urges, and comfort.
- **If 2-3 cans or pouches of tobacco per week:** 21 mg patches daily for 4-6 weeks. Taper dose in 7-14 mg steps every 2-4 weeks based on patient's report of withdrawal symptoms, urges, and comfort.
- **If < 2 cans or pouches of tobacco per week:** 14 mg patches daily for 4-6 weeks. Taper dose in 7-14 mg steps every 2-4 weeks based on patient's report of withdrawal symptoms, urges, and comfort.

Nicotine Lozenge as Monotherapy

- If first dip of the day is < 30 minutes of awakening, or using >3 cans or pouches of tobacco per week: **4 mg** nicotine lozenge at 1-2 lozenges every 1-2 hours as needed to control cravings and withdrawal symptoms. Limit use to no more than 20/day for up to 12 weeks. Taper as needed to control cravings and withdrawal symptoms.
- If first dip of the day is \geq 30 minutes after awakening or using \leq 3 cans or pouches of tobacco per week: **2mg** nicotine lozenge at 1-2 lozenges every 1-2 hours as needed to control cravings and withdrawal symptoms. Limit use to no more than 20/day for up to 12 weeks. Taper as needed to control cravings and withdrawal symptoms.

Nicotine Gum as Monotherapy

- If first dip of the day is < 30 minutes of awakening, or if using > 2-3 cans or pouches of tobacco per week: **4 mg** nicotine gum at 1-2 pieces every 1-2 hours as needed to control cravings and withdrawal symptoms, up to 10-12 pieces per day. Taper as needed to control cravings and withdrawal symptoms.
- If first dip of the day is \geq 30 minutes after awakening, or if using \leq 2 cans or pouches of tobacco per week: **2 mg** nicotine gum at 1-2 pieces every 1-2 hours as needed to control cravings and withdrawal symptoms, up to 10-12 pieces per day. Taper as needed to control cravings and withdrawal symptoms.

Signs of too much nicotine replacement are nausea and dizziness, which usually occur within 1-2 hours of patch application. We have found these side effects to occur infrequently, even at the higher doses.

3. **Adjunctive therapy:** Nicotine gum (2 mg) or the nicotine lozenge (2 mg) can be used as needed in combination with the nicotine patch to provide additional control of withdrawal symptoms and cravings. To assist patients in coping with the behavioral aspects of ST use, products with a similar taste and texture (known as snuff substitutes) can be recommended.
4. **Bupropion SR:** Bupropion SR may be used in the same dosages used for cigarette smokers, either in combination with NRT products or as monotherapy. We recommend starting bupropion SR 150 mg po qd for three days and increasing to 150 mg po bid thereafter. The target stop day should be one week after starting bupropion SR therapy. We continue bupropion SR for three months, or indefinitely, if necessary.
5. **Behavioral therapy:** As with cigarette smokers, it is important to encourage behavioral counseling in addition to pharmacologic therapy. This typically includes identifying use triggers and modifying behaviors that increase the risk for relapse. An important aspect of the intervention is an oral examination. Identification and discussion of oral lesions associated with ST use can be a powerful motivator to quit. Physicians should make the oral examination part of their assessment and treatment of all ST users.

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Jon O. Ebbert, MD, MSc
Associate Professor of Medicine
Lowell C. Dale, MD
Associate Professor of Medicine
Mayo Clinic College of Medicine

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