

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), oropharyngeal cancer, and periodontal disease. ST use may increase the risk for cancer of the 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 the amount of snuff (cans) or chewing tobacco (pouches) used per week as follows:

Cans/pouches per week	Level of dependence
< 1	low
1-2	moderate
≥ 3	severe

Other signs of significant tobacco dependence are: 1) dipping within 30 minutes of awakening; 2) waking up at night to place a dip or leaving the dip in overnight; and 3) swallowing the tobacco juice most of the time rather than spitting.

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 patch and 1 nicotine gum) have not demonstrated increased abstinence rates compared to placebo at 6 months or 12 months. In the third study, 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 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:** One of the explanations for the poor outcomes from NRT trials to date may be that most ST users require higher doses of nicotine replacement. In order to improve efficacy and withdrawal symptom relief, NRT should be dosed at levels that achieve 100% replacement of nicotine levels achieved during ST *ad libuse*. Initial dosing can be based on the amount of ST used/week as follows:

<u>Cans/pouches used per week</u>	<u>Nicotine patch dose</u>
<1	11-22 mg
1-2	21-33 mg
2-3	33-44 mg
>3	42-44 mg + daily nicotine gum

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. If we prescribe more than 44 mg/day, the third patch should be placed several hours after the first two to avoid potential toxicity.

3. **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.

4. **Adjunctive therapy:** Nicotine gum (2 mg or 4 mg) or then nicotine lozenge (2 to 4 mg) can be used as needed in combination with the 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.
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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