

# Smokeless tobacco reduction: Preliminary study of tobacco-free snuff versus no snuff

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This preliminary study examined the effects of tobacco-free snuff (intervention,  $n=52$ ) compared with no snuff (control,  $n=54$ ) for reducing tobacco use among smokeless tobacco (ST) users not interested in quitting. Both groups received behavioral instructions, and intervention subjects received tobacco-free snuff for 8 weeks. Participants were required to reduce their intake by 50% during the first 4 weeks and by 75% during the subsequent 4 weeks. Follow-up occurred at 12 weeks. Significant reductions were observed from baseline to week 8 (end of treatment) for both treatment groups in the amount of ST use (tins/week and dips/day,  $p<.001$ ); mean urinary cotinine ( $p<.001$ ); and mean urinary total NNAL, a carcinogen biomarker ( $p<.001$ ). At week 8 the intervention resulted in a lower mean total NNAL ( $p=.048$ ). Compared with the control condition, the intervention resulted in a higher percentage of subjects achieving at least a 50% reduction in cotinine ( $p=.046$ ) and total NNAL ( $p=.002$ ) at the end of treatment, more quit attempts ( $p=.030$ ), and a longer mean duration of abstinence ( $p=.013$ ) through follow-up. An ST reduction intervention incorporating tobacco-free snuff could potentially reduce risk for ST-related disease beyond that achieved with no snuff by increasing the number of patients who achieve significant reductions in carcinogen exposure and, more important, by facilitating tobacco abstinence by increasing quit attempts and abstinence duration.

## Introduction

Tobacco abstinence has been the primary goal for the vast majority of disease prevention efforts. Unfortunately, many individuals trying to quit tobacco are unsuccessful in achieving abstinence. In clinical trials among smokeless tobacco (ST) users, tobacco abstinence rates are 25%–35% at 1 year (Hatsukami & Severson, 1999). Abstinence rates are likely to be lower among ST users quitting on their own.

Although tobacco abstinence is the goal for eliminating health risks associated with tobacco use, reduction might serve as a stepping stone toward

abstinence or as a means to reduce morbidity and mortality associated with tobacco use among individuals not interested in quitting completely (Henningfield & Slade, 1998; Hughes, 1995; Shiffman, Mason, & Henningfield, 1998; Stratton, Shetty, Wallace, & Bondurant, 2001). Previous studies have observed a dose-response relationship between the amount of ST consumption and adverse health consequences (Tomar, Winn, Swango, Giovino, & Kleinman, 1997). A reduction in the incidence of adverse health consequences associated with ST use could theoretically be achieved through a reduction in ST toxicant exposure. In a previous preliminary ST reduction study, we observed a significant reduction in amount of tobacco use and biomarkers for tobacco toxicant exposure over an 8-week treatment period and 12-week follow-up (Hatsukami et al., 2003). This finding suggests the potential efficacy of a tobacco reduction strategy for reducing disease incidence associated with ST use.

One method to reduce ST exposure is the use of tobacco-free snuff as an ST substitute. This product

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