

# Smokeless Tobacco Cessation: Report of a Preliminary Trial Using Nicotine Chewing Gum

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**Background.** Smokeless tobacco use is a major public health hazard whose incidence is increasing, particularly among male adolescents. Little research has been done on cessation programs designed to assist smokeless tobacco users in ending their habit. There have been no studies on the use of nicotine polacrilex chewing gum as an adjunct to cessation.

**Methods.** Fourteen of 88 male smokeless tobacco users in a professional baseball organization enrolled in a cessation program and were followed for up to 12 months. The program consisted of two support group sessions at the spring training camp followed by adjunctive use of nicotine polacrilex chewing gum during the baseball season as monitored by the athletic trainers.

**Results.** At 2 to 4 months, only 3 of 14 participants were completely abstinent from smokeless tobacco.

Follow-up data at 6 to 12 months revealed that only one participant was abstinent. The 14 ballplayers experienced various side effects of nicotine chewing gum: bad taste (6), nausea (4), headache (4), jaw discomfort (3), and dizziness (1). Despite these side effects, 11 of the 14 participants replied that they would recommend the gum to others trying to quit. Most participants (10) felt that quitting the smokeless tobacco habit was "very difficult."

**Conclusions.** We conclude that nicotine chewing gum as an adjunct to smokeless tobacco cessation had limited effectiveness. Further study on smokeless tobacco cessation methods is needed.

**Key words.** Tobacco, smokeless; smoking cessation; nicotine; chewing gum; baseball. (*J Fam Pract* 1993; 37:264-267)

Smokeless tobacco is now acknowledged to be a significant health hazard. Among its documented adverse effects are oral cancer, oral leukoplakia, dental caries, periodontal disease, and nicotine addiction.<sup>1</sup> Approximately 12 million Americans are regular users of smokeless tobacco. Its rising use among youth in the United States is of particular concern.<sup>2</sup> As self-reported in epidemiologic studies, 19.1% of male adolescents have recently used smokeless tobacco.<sup>3</sup>

This public health hazard warrants action to develop effective smokeless tobacco cessation programs. Dissemination of information about the health risks of smokeless

tobacco can be helpful in reducing consumption,<sup>4</sup> but programs designed specifically to deal with nicotine addiction must be an important part of our efforts.

Although there has been much research into cessation programs for cigarette smokers, regrettably, little attention has been given to smokeless tobacco users. Glover was one of the first to report on conducting a smokeless tobacco cessation program.<sup>5</sup> The effectiveness of his program was only 2.3% at 6 months. Eakin et al<sup>6</sup> enrolled 25 smokeless tobacco users in a multidisciplinary cessation program. Of the 25 users, 9 were abstinent at the end of the 3-week program, but only 4 were still not using smokeless tobacco at 3 months. Little and coworkers<sup>7</sup> reported a 32% success rate in a behavioral program run by dental hygienists.

Both oral (nicotine chewing gum) and transdermal (nicotine patch) forms<sup>8-10</sup> of nicotine replacement therapy have been effective in smoking cessation. Their ef-

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fectiveness in ending smokeless tobacco use has not been studied. Glover anecdotally reported effectiveness in one patient.<sup>5</sup> The current study was undertaken to determine whether nicotine chewing gum could be effective in aiding smokeless tobacco users in terminating their habit. We studied the use of nicotine gum in professional baseball players and coaches, a group that has been clearly shown to be at high risk for smokeless tobacco use.<sup>11-17</sup>

## Methods

Participants were recruited from 206 men who attended the spring training camp of a professional baseball team in March 1990. These men consisted of players from the parent major league club and all of their minor league affiliates, as well as all coaches and management personnel.

All participants in the training camp were required to have a preparticipation physical examination. This opportunity was taken to administer a questionnaire about the use of smokeless tobacco products. Included in the questionnaire were items requesting information on past and current attempts at discontinuing smokeless tobacco use. One question specifically asked if the participant would be willing to begin a cessation program at the spring training camp.

Following an educational session on the health effects of smokeless tobacco, participants were invited to enroll in a smokeless tobacco cessation program. The program was strongly endorsed by the organization's upper-level management.

Before enrollment, the potential hazards of nicotine gum were outlined and a signed consent form was obtained from each participant. Participants were given informational material outlining strategies for quitting that were modeled after programs designed for cigarette smokers.<sup>18-20</sup> The strategies included setting a quit date, using an alternative to smokeless tobacco, and avoiding situations and events that trigger smokeless tobacco use. These behavioral modification methods were felt to be an important part of the cessation program.

Nicotine polacrilex chewing gum was made available to all participants. The athletic trainers of the organization were asked to maintain a supply of the gum and distribute it as needed to each of the participants. A sheet was prepared that described proper use of the gum, with instructions geared specifically for smokeless tobacco users.

A half-hour meeting of participants was held later during spring training at the camp to assess early progress. The meeting also served as an opportunity to

reinforce behavioral strategies before the teams split up to go to their respective home cities.

Follow-up questionnaires were mailed to the trainers for distribution to participants at monthly intervals during the baseball season; a final questionnaire was administered at 1 year. The questionnaires asked for quantitation of smokeless tobacco use as well as quantitation of nicotine chewing gum use.

## Results

Smokeless tobacco use was reported by 88 of 206 men (43%) at the spring training camp. Of the 88 smokeless tobacco users, 35 (40%) indicated that they wanted to quit, while 40 men (45%) reported that they had already tried to quit in the past, but had been unsuccessful. When asked if they would like to enroll in a smokeless tobacco cessation program during training at the camp, 28 of 88 smokeless tobacco users (32%) replied affirmatively. At the initial cessation meeting, however, only 18 men (20%) attended and were enrolled into the study.

Four players were either traded or released from the organization and were therefore lost to follow-up. Attempts to track these individuals were unsuccessful. Although questionnaires were mailed monthly, some were incomplete, late, or not returned. It was necessary to group the follow-up results into intervals of 2 to 4 months and 6 to 12 months. The results reported below are based on the 14 participants who were satisfactorily followed for at least 6 months.

The average age of the participants was 28.3 years (range 21 to 46 years). The average age at which smokeless tobacco was first used was 16.4 years (range 10 to 30 years). Eleven men used only moist snuff at an average of 2.6 cans per week (range 0.5 to 7 cans per week). One man used only chewing tobacco at the very high rate of 20 pouches per week. Two men used both moist snuff and chewing tobacco. Their average use was 5.5 cans of snuff per week and 2 pouches of chewing tobacco per week. None of the participants reported cigarette use.

At 2 to 4 months of follow-up, only three participants were completely abstinent from smokeless tobacco. Decreased use was reported by six men. Three others reported that they had actually increased their use of smokeless tobacco. Nicotine gum was still being used by three participants at 2 to 4 months.

At 6 to 12 months, only one of the participants was abstinent from smokeless tobacco. Seven men were able to cut down their use of smokeless tobacco and three reported increased use. One "success story" was the heavy chewing-tobacco user who reduced his consump-

tion from 20 pouches per week to only 2 pouches per week.

Side effects of the nicotine chewing gum were noted quite frequently. The reported side effects were bad taste (6), nausea (4), headache (4), jaw discomfort (3), and dizziness (1).

When asked how hard it had been to quit the smokeless tobacco habit, 10 men responded "very difficult," 3 "somewhat difficult," and 1 "easy." The frequently cited reasons for difficulty in quitting were: "I can't break the habit" (9), "I enjoy it" (8), "I feel relaxed when I chew" (6), and "I'm hooked" (5). One participant responded that it was "part of the game." None of the men believed that peer pressure from fellow team members played a role in their continued use.

In reply to the question "Is the gum helping you to quit?" only four participants replied affirmatively. Despite this response, 11 men replied that they would recommend the nicotine chewing gum to other people who want to quit.

## Discussion

The results of this smokeless tobacco cessation program were disappointing. Of the 14 men for whom complete follow-up data were obtained, only 3 were abstinent at 2 to 4 months and only 1 was abstinent at 6 to 12 months.

There are only three previous reports of smokeless tobacco cessation efforts. The success rate for Little et al<sup>7</sup> was 32% abstinence at 3 months. Eakin et al<sup>6</sup> reported 16% abstinence at 3 months. However, Glover,<sup>5</sup> who followed his patients for a longer interval, had only a 2.3% success rate at the end of 6 months. These results and those of the current study underscore the strong addiction to nicotine that occurs with smokeless tobacco use.

Smoking cessation programs have been frequently reported, and the results of these programs vary greatly. The studies with the best abstinence rates tend to be those with only short-term follow-up. In those studies in which a 1-year follow-up assessment was performed, abstinence rates were usually lower.<sup>21</sup> The current study confirms that trend.

A problem with the current study was the lack of behavioral modification treatment after the teams split from camp to their respective home cities. We were able to provide physician support only during the training period. After training camp, support was provided only by the athletic trainers. Although quite dedicated to the health of their players, these men were not adequately trained to provide support for smokeless tobacco cessation. Their primary role in the study was to provide the

nicotine gum as needed to the participants and obtain follow-up data.

Physician follow-up is often a key factor in the success of smoking cessation programs.<sup>21</sup> One of the authors made himself available to all participants by phone at any time during the program; however, none of the participants availed himself of this support. Clearly, telephone support is no substitute for a scheduled office follow-up visit.

Further, the nicotine polacrilex chewing gum was not well tolerated by the participants. Half of all participants reported side effects; the most common were bad taste, nausea, headaches, and jaw discomfort. Participants in other studies have expressed the hope that nicotine gum will aid smokeless tobacco cessation.<sup>1,5,22</sup> The fact that a person is substituting one orally used substance for another makes the gum a potentially useful form of nicotine replacement. The nicotine patches, which have recently been approved, may be of benefit. Compliance is less of a problem, as the patch is applied once per day. In the athlete, however, perspiration during competition could affect the transdermal absorption or even the adhesive properties of the patch. Further study is warranted for use of both nicotine gum and the nicotine patch in smokeless tobacco cessation.

Our results confirm that smokeless tobacco use is a difficult habit to break. Almost three fourths of the participants found it "very difficult" to stop using smokeless tobacco. Most of the difficulties in quitting centered around tobacco's addictive properties, as reflected by comments such as "I can't break the habit," "I feel relaxed when I chew," and "I'm hooked." Interestingly, peer pressure did not seem to play a role. This is surprising, as smokeless tobacco use is high among ballplayers, ranging from 34% to 43%.<sup>10,14-16</sup>

It is unclear whether the nicotine gum failed or whether the behavioral methods failed. It is likely, however, that the latter aspect was more important. Future cessation programs could include the use of nicotine chewing gum or nicotine transdermal patches, but must have a strong behavioral component.

Perhaps more important than cessation programs is prevention. Routine counseling on the hazards of tobacco in all forms, not just cigarettes, should be an important part of the health maintenance visit.

Major League Baseball has made a firm commitment to dealing with the smokeless tobacco problem. They have produced an informational pamphlet on the hazards of smokeless tobacco<sup>23</sup> and have devised a "nine-inning game plan" to help players quit.<sup>24</sup> Physicians can no longer be mere spectators in this arena. Our patients who use smokeless tobacco need our help in beating this formidable opponent.

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