1. Introduction
Intermittent dorsal displacement of the soft palate (IDDSP) is recognized as a cause of exercise intolerance in the racehorse.\(^1\) Surgical procedures to treat IDDSP include sternothyrohyoideus myectomy, staphylectomy, and epiglottic augmentation.\(^2\) The efficacy of these procedures has been supported by retrospective studies.\(^3\) Recently, a modified surgical technique involving sternothyroideus tenectomy was described by Llewellyn, et al.\(^4\) However, the success of this procedure has not been definitively established. Additionally, debate exists regarding the necessity of performing a staphylectomy in conjunction with the tenectomy. The purpose of this study was to compare racing performance of Thoroughbreds after surgical treatment of IDDSP with either ST alone or in combination with staphylectomy.

2. Materials and Methods
Case records from a large racetrack practice and a Veterinary Medical Teaching Hospital were reviewed. All Thoroughbred racehorses with a clinical diagnosis of IDDSP that received surgery were considered for inclusion in this study. Data retrieved from the records included signalment, history of exercise intolerance or respiratory noise, upper airway endoscopic findings (resting or treadmill examination), surgical procedure performed (sternothyroideus tenectomy [ST] or sternothyroideus tenectomy in combination with staphylectomy [ST&S]). Horses were separated by treatment into groups receiving either ST or ST&S.
Race records were also obtained. Data retrieved included days to first start after surgery, total earnings, and earnings per start for the 3 starts prior to and after surgery. A treatment success was defined as an increase in earnings per start for the 3 starts after surgery as compared to the 3 starts prior to surgery. A treatment failure was defined as a decrease in earnings per start for the 3 starts postsurgery compared to the 3 starts prior to surgery.3

The proportion of horses categorized as treatment successes was compared for the 2 surgical treatments (Chi-square test). Days to first start (median) were compared between treatments (Mann-Whitney U-test). In addition, for each surgical treatment, paired comparisons of earnings per start before and after surgery were tested (Wilcoxon sign rank test). For all tests, values of $p \leq 0.05$ were considered significant.

3. Results

Eighty-seven case records were obtained. More horses received ST (53) than received ST&S (34) for treatment of IDDSP. Differences in age, sex distribution, clinical history, and endoscopic findings at rest were not detected between ST and ST&S groups ($p > 0.05$). Of the 53 horses that received ST, 30 horses made 3 starts before and after surgery. Sixty percent of these had a successful outcome. Of the 34 horses that received ST&S, 18 made 3 starts before and after ST&S surgery. Seventy-eight percent of these were considered as having a successful outcome. However, number of days to first start for horses receiving ST was significantly less than horses receiving ST&S (median 30 days for ST versus median 70 days for ST&S).

4. Discussion

The success rate for horses receiving ST was 60% which compares favorably with previous reports.2,4 The success rate for horses receiving ST&S (78%) was higher than previous reports in which only one surgical treatment was performed for IDDSP.3 Because use of performance data as a measure of success has limitations, we compared earnings per start for 3 races before and after surgery in an attempt to limit the bias inherent in studies using performance as a measure of success.

In the present study, earnings per start after surgery were higher in the horses that received ST&S versus those receiving ST alone. The apparent increase in success for the ST&S group could be due to several factors. Combination of the 2 procedures may have increased the efficacy of either surgery used alone. However, the postoperative recovery time was significantly longer for this group (median 70 days vs. median 30 days). Additional time off associated with recovery from ST&S may have allowed concurrent problems (lameness, etc.) to improve or resolve. Based on the results of this study, horses receiving sternothyroideus tenectomy and staphylectomy had a higher overall success rate than those receiving sternothyroideus tenectomy alone. However, factors such as time off postoperatively and case selection may have affected success rates.

References