Correlation of Racing Performance to Yearling Endoscopic Evaluation

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There was no difference in racing performance for horses with Grades I, IIa, and IIb arytenoid symmetry at two or three years of age. Compared with normal controls, horses with Grade III arytenoids had fewer starts and less earnings as 3-year-olds. Yearlings with mild and moderate flaccid epiglottis had fewer starts and less earnings as 2-year-olds when compared with normal controls; there was, however, no difference at three years of age. Authors’ address: Rood and Riddle Equine Hospital, P.O. Box 12070, Lexington, KY 40580. © 2001 AAEP.

1. Introduction
In the sales environment, clients ask veterinarians to perform an endoscopic examination of the upper respiratory tract (URT) and assess future racing performance. Recommendations are based on the structural, functional, and anatomical characteristics of the URT, recognizing that these yearlings have yet to be subjected to athletic training. The purpose of this study was to compare endoscopic examinations of the URT in sales yearlings to racing performance at 2 and 3 years of age.

2. Materials and Methods
Endoscopic examination of the URT of 816 Thoroughbred yearlings was performed by the first author in the same year. Arytenoid function and epiglottic character were examined in a stall with twitch restraint through the right nostril, using the swallowing reflex and nasal occlusion. Number of starts, earnings, and earnings per start at ages 2 and 3 were used as response variables in analyses of variance with various groupings as explanatory variables.

Arytenoid function was graded using a modified I–IV scale.1,2 Grade I, synchronous and symmetrical; Grade IIa, mildly asynchronous or asymmetrical, maximal abduction easily achieved; Grade IIb, asynchronous or asymmetrical, maximal abduction with difficulty; Grade IIIa, asynchronous or asymmetrical movement cannot maintain full abduction; Grade IIIb, limited movement but arytenoid cannot fully abduct; Grade IV, no arytenoid movement.

Epiglottic structure was graded normal (N) and 1–4 abnormal. A normal (N) epiglottis had good thickness, length, and definition with serrated edges. A Grade I epiglottis had a slightly flaccid epiglottis and good length and texture, but was slightly thinner than normal without serrated edges. A Grade II epiglottis had a slightly flaccid epiglottis and good length and texture, but was slightly thinner than normal without serrated edges. A Grade II epiglottis had mild flaccidity, adequate length, thinner than normal curved edges, and no dorsal vasculature. A Grade III epiglottis was moderately flaccid, very thin, and bent easily. A Grade IV epiglottis was severely flaccid, extremely thin, was markedly short, and bent easily.

Race records were obtained from the Jockey Club Information Service. Statistical analysis using ANOVA compared the number of starts and earn-
ings per start for the different arytenoid grades and epiglottic grades (p < 0.05).

3. Results

Graded arytenoid function was recorded in 812 yearlings, revealing 158 (19.5%) Grade I, 580 (71.5%) Grade II, 61 (7.5%) Grade IIb, 13 (1.5%) Grade III, and 0 Grade IV arytenoid functions. There was no statistically significant difference in number of starts, earnings, or earnings per start when yearlings with Grades I, IIa, or IIb arytenoid functions were compared. These yearlings were then grouped and considered normal.

Thirteen yearlings with Grade III arytenoid function were compared to the normal yearlings. No significant difference was seen in any response variable at two years of age. There was a significant difference in number of starts (5.14 vs. 2.31, p = .0348), in earnings ($39,736 vs. $8,753), and in average earnings per start ($5,980 vs. $1,834) as three-year-olds.

Of 813 yearlings, epiglottic structure was graded normal (N) in 648 (80%), slightly flaccid (Grade I) in 112 (14%), mildly flaccid (Grade II) in 17 (2%), moderately flaccid (Grade III) in 2 (1%), and severely flaccid (Grade IV) in 2 (<1%). Using any of the response variables, there was no significant difference in performance between normal horses and horses with Grade I epiglottic characteristics (min p = 0.1906). This population was considered normal. When 34 yearlings with Grade II epiglottis (mildly flaccid) were compared to normal yearlings, however, there was a significant difference in mean earnings ($14,688 vs. $4,025, p = .0011) and average earnings per start ($3,726 vs. $1,585, p = .0361) at two years of age. There was also a difference in earnings as 3-year-olds between normal horses and horses with Grade II epiglottis, but there was too much variability for it to be significant (p = .3307). There was no significant difference in the median values of N and II. There was a difference in average earnings per start at 3 years of age but it was not statistically significant (p = .1368).

When 17 yearlings with a Grade III epiglottis (moderately flaccid) were compared to normal yearlings, total earnings at 2 and 3 years of age was not significantly different. At two years of age there was a significant difference in average earnings per start ($3,726 vs. $918, p = .0001). There was a difference in average earnings per start at age 3, but the difference was not statistically significant (p = .0793). Yearlings with Grade IV (severely flaccid) epiglottis were not evaluated because of their small number.

Seventy-three yearlings were recorded as having a small pharyngeal lumen. There was a significant difference in earnings at 3 years of age ($40,270 vs. $25,091, p = .0276) when these yearlings were compared to normal controls.

4. Discussion

There was no statistically significant difference in any parameter in the horses with Grades I, IIa, and IIb arytenoid functions. Functionally, these can be considered normal. Yearlings with Grade III arytenoid function either had higher or average earnings per start at age 2, which finding was influenced by one horse that won more than $350,000 at age two but was unraced at three. At three years of age, there was a significant difference in number of starts and earnings between horses with Grade III arytenoid function and normal controls, which suggests performance limitation.

There was a significant difference between the earnings of horses with Grade II or III epiglottis and normal horses at 2 years of age, but at 3 years of age the difference was not significant. At 2 years of age, earnings per start were lower than those of normal horses (p = .0011), but at age 3 there was no statistical difference.

The technique used for epiglottis evaluation is semiquantitative, but no statistical difference was found in any of these groups during their 3-year-old year. The results of an endoscopic examination can have a major affect on the price of a yearling. Many yearlings with flaccid epiglottis are discounted on prepurchase endoscopic examinations. This study should help us become more tolerant of a less than perfect epiglottis in yearlings. Small airways as a yearling seem to be detrimental.

References