

I'm considering an 'off the track' Thoroughbred as my next riding horse, but I hear the one I like is 'gone in the wind'. Should I look elsewhere for what I need?

The first step in answering this question is to describe what is meant by the term 'gone in the wind'. The second is to define what you need your retired racehorse to do in his or her new job.

The term 'gone in the wind' is a relatively loose term that is used to describe a multitude of upper airway abnormalities in the horse that result in respiratory noise during exercise. By far the most common upper airway abnormality that it is used to describe in Thoroughbreds is a syndrome called recurrent laryngeal neuropathy (RLN), also known as 'roaring'. This is a syndrome where degeneration of the recurrent laryngeal nerve results in loss of the muscles that control movement of the left arytenoid (the left and right arytenoids are the cartilage flaps that close the entrance of the windpipe during swallowing to protect against aspiration of food [Figure 1]). The result of this muscle loss is that the left arytenoid cartilage literally 'flaps in the breeze' each time the horse breathes in. Horses affected with RLN are commonly called "roarers", due to the characteristic roaring noise these horses make on inspiration during exercise. The focus of this article will be on roarers, but the term 'gone in the wind' can refer to respiratory issues other than roaring such as epiglottic entrapment, arytenoid chondritis, dorsal displacement of the soft palate or recurrent airway obstruction (aka: heaves). Although all of these problems have potential to cause noise and variable degrees of exercise intolerance, treatment for each of them is different and the prognosis associated with treatment can vary. In an effort to keep these articles relatively succinct, I will address these problems separately in future articles over the next few months. Suffice to say, however, before deciding whether a 'gone in the wind' Thoroughbred will meet your needs, it is essential to obtain an accurate diagnosis of what the actual problem is.

Let's start by discussing how to accurately diagnose a roarer. Although the sound a roarer makes is fairly characteristic, unfortunately it is by no means a 100% accurate means of diagnosing the problem. More importantly, the degree of noise made is at best a rough estimate of the severity of the problem. An accurate diagnosis is best made via upper airway endoscopy. This can be done at rest (resting endoscopy) or during exercise (dynamic endoscopy). Laryngeal ultrasound is also a useful adjunct diagnostic tool. Dynamic endoscopy is considered the gold standard diagnostic for almost all upper airway abnormalities in the horse. In the case of roarers, moderate to severely affected horses will tend to show the abnormality on resting endoscopy, while mildly affected horses often need the strain of a hard gallop to induce the abnormality. With this in mind, you can already surmise that if you are not planning to ask your 'off the track' Thoroughbred to do a sport that involves hard galloping, a mild case of RLN is fairly unlikely to cause exercise intolerance.

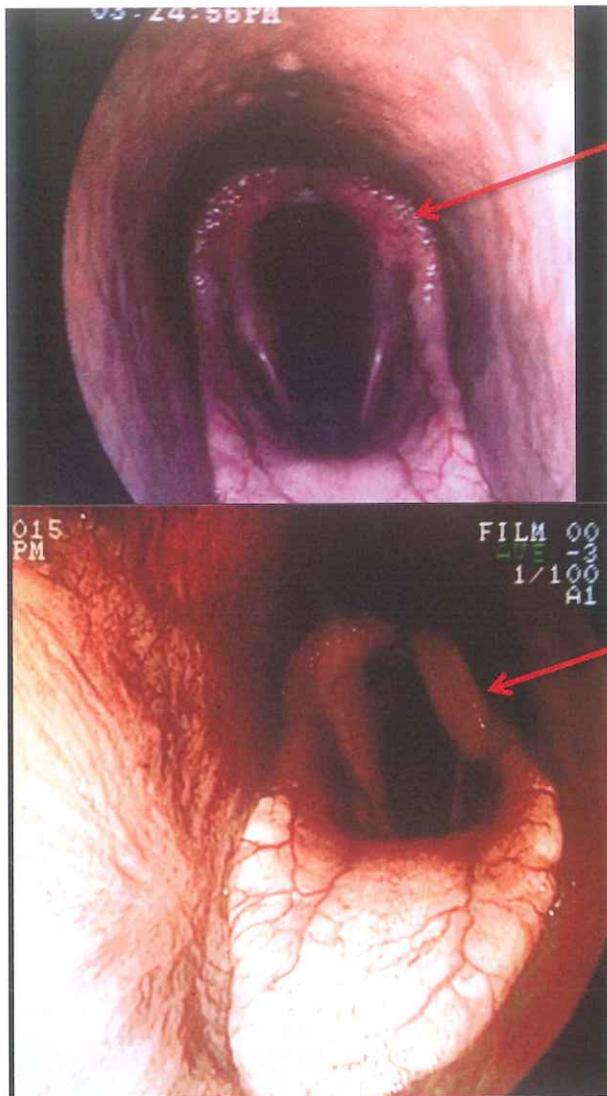
That begs the question then, how do we differentiate a mild roarer from a severe one. The answer: we grade them. There are two grading systems that veterinarians use to grade roarers and the details of these two systems are compared in Table 1. North America and Europe use the Havermeyer system of grading while Australia and New Zealand use the Lane system. Using the Lane system, a grade of 4 or 5 is expected to negatively affect racing

performance in a Thoroughbred. It is important to remember though that racing puts more strain on the upper respiratory tract than any other sport. Thus, while a moderate roarer may be a severe problem for a race horse, it is unlikely to cause performance limiting exercise intolerance in a pleasure riding horse, dressage horse or low level jumper.

On the converse side, if you are looking for an intermediate level eventer and your perfect Thoroughbred is a grade 5 roarer, this horse is likely to need some help in order to meet your needs. The 'tie-back' and ventriculo-cordectomy are the combination of surgical procedures commonly used in roarers to stabilize their upper airway. The 'tie-back' uses high tensile suture to literally tie the dysfunctional left arytenoid to the side of the larynx so that it is not flapping freely in the middle of the airway with each breathe. This is the portion of the procedure that is needed to improve exercise tolerance in galloping horses. The ventriculocordectomy is a procedure in which a small portion of the vocal cord and the little air sack (ventricle) immediately adjacent to it is removed. These two structures are part of the mechanism that help a horse to whinny. In a roarer, however, they become stretched and floppy so they can impede airflow to some degree during intense exercise. These are also the structures that cause most of the abnormal noise that a roarer makes. In a dressage horse this is an important consideration as dressage horses can be eliminated from competition due to 'wind unsoundness'. As the aerobic demands of a dressage horse are significantly less severe than those of a racehorse, exercise intolerance secondary to roaring is not commonly seen. Thus, a ventriculo-cordectomy to resolve the noise may be all that is needed if you are considering a high grade roarer as a potential dressage horse. This differentiation is worth noting as a ventriculo-cordectomy is about a third of the cost of a tie back/ventriculo-cordectomy combination and can be done under a brief intravenous general anesthetic (similar to a castration type of anesthetic).

In summary, if you are considering an 'off the track ' Thoroughbred as your next sport horse, don't eliminate horses that have a history of being 'gone in the wind' from your list of candidates if they otherwise meet your criteria as an athlete. First, find out if they truly are roarers, or if 'gone in the wind' refers to another wind condition. Secondly, find out what grade of roarer the horse is. Horses that are grade 3 or less are still likely to make good athletes in sports that do not require them to do hard galloping. Lastly, if the horse is a grade 4 or 5 roarer, but otherwise seems like the perfect candidate for you, investing in a surgical procedure that improves his airway is always an alternative.

As mentioned earlier, 'gone in the wind' can refer to many different upper respiratory problems that cause noise. Next month's article will address epiglottic entrapment and arytenoid chondritis as causes of respiratory noise and what potential these problems have to influence performance in sport horses or pleasure horses.



Normal left arytenoid

Collapsing left arytenoid in a roarer

Figure 1: Larynges during inspiration in a normal horse (top) and a roarer (bottom).

Table 1: A comparison of the Lane and Havermeyer grading systems:

Description	Lane system	Havermeyer system
The arytenoid cartilages are symmetrical at rest. All movements are synchronous and symmetrical and full arytenoid cartilage abduction can be achieved and maintained.	Grade 1	Grade 1
The arytenoid cartilages are symmetrical at rest. There is asynchronous or delayed movement of one of the arytenoid cartilages compared with the other, but full symmetrical arytenoid cartilage abduction can be achieved and maintained.	Grade 2	Grade 2.1
There is mild asymmetry of the rima glottidis at rest due to reduced mobility of the affected arytenoid cartilage and vocal fold but full symmetrical arytenoid cartilage abduction can be achieved and maintained after swallowing or temporary nasal occlusion.	Grade 3 a/b	Grade 2.2
There is moderate asymmetry of the rima glottidis at rest due to reduced mobility of the affected arytenoid cartilage and vocal fold. Although full symmetrical arytenoid cartilage abduction can be achieved after swallowing or temporary nasal occlusion it is not maintained on the affected side.	Grade 3 c	Grade 3.1
There is obvious/marked asymmetry of the rima glottidis at rest and although there is still some movement, full abduction of the affected arytenoid cartilage is never achieved.	Grade 4	Grade 3.2 (obvious) Grade 3.3 (marked)
There is complete immobility of the affected arytenoid cartilage and vocal fold.	Grade 5	Grade 4