EQUINE
ANALYSIS SYSTEMS

THE WIND TEST®

SONOGRAPHY AND ITS IMPLICATIONS IN RESPIRATORY EVALUATION

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Introduction:

Endoscopy has been a tremendous aid in diagnosing upper airway problems in horses. However, it has its limitations. Resting endoscopy tells us very little about how the upper airway functions during exercise, when the respiratory system is at its peak level of stress. Dynamic scoping procedures do gain insight during this critical time, but at significant cost. Inserting a foreign object into the horse's upper airway inherently influences the respiratory system, and thus the quality of the examination. Additionally, the equipment can cause injury to the horse or even to the rider who often has to wear a heavy and potentially dangerous back or leg pack.

The Wind Test® avoids the drawback of the Dynamic Scope while still providing data on upper airway physiology and pathology at peak stress. The Wind Test® can be administered on a normal work and requires only one sub 12-second furlong to record a result. Additionally, the Wind Test® requires no intrusive tack or foreign objects to be inserted into the upper airway. Instead the system only requires the horse to wear a modified blinker set that weighs a mere 2.2 pounds while the jockey is burdened with no extra recording or imaging equipment.

Picture 1: The Wind Test® hood on Dubai World Cup Winner Roses in May.

Seeing with Sound

The Wind Test® is able to provide upper airway information because it utilizes a unique medium to identify potential pathology; sound. In a partnership with Signal Solutions, Equine Analysis Systems has designed hardware and software that can detect and chart the otherwise imperceptible frequencies that reveal different upper airway pathologies. Our veterinarians can then examine the charts procured by the program and "see" upper airway conditions just as clearly as if they were looking at a video, without the complexities of a dynamic scope.

Figure 1: Normal Amplitude vs Frequency chart

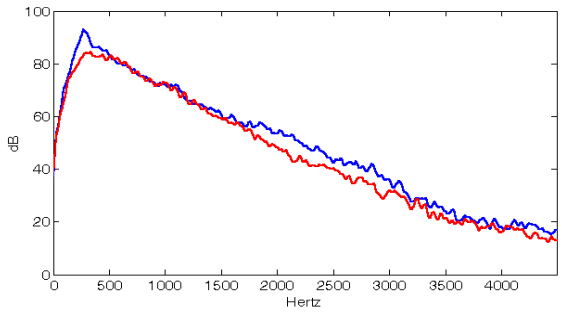


Figure 2: Abnormal Amplitude vs Frequency chart. (Horse demonstrating a whistle)

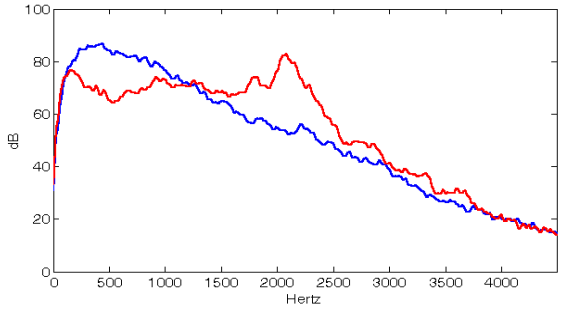


Figure 3: Amplitude vs Frequency chart of horse in Fig 2. that has received corrective surgery.

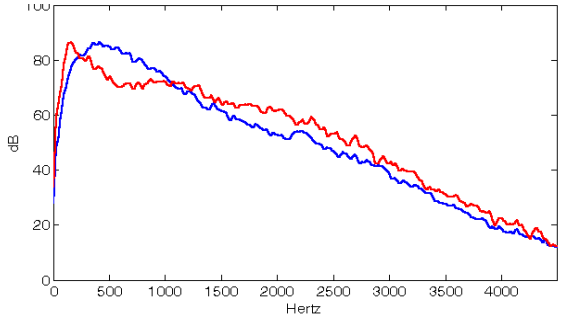


Figure 4: Normal Inhale Spectrogram

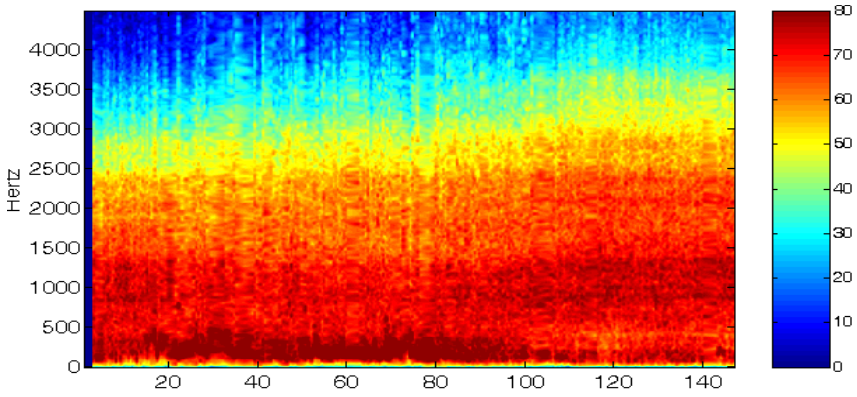


Figure 5: Abnormal Inhale Spectrogram.

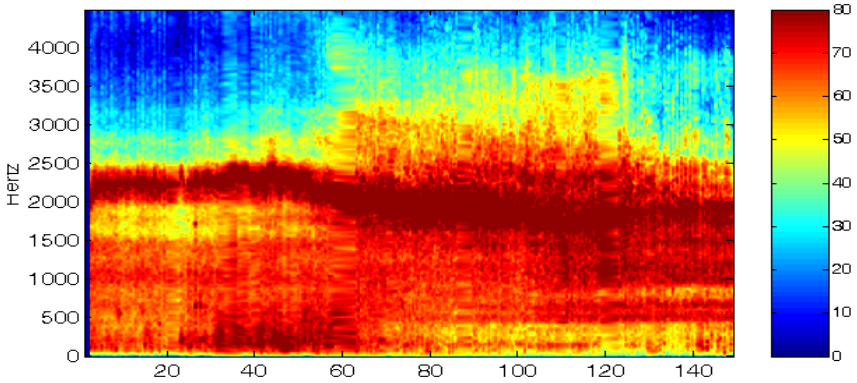


Figure 7: Normal Exhale Spectrogram

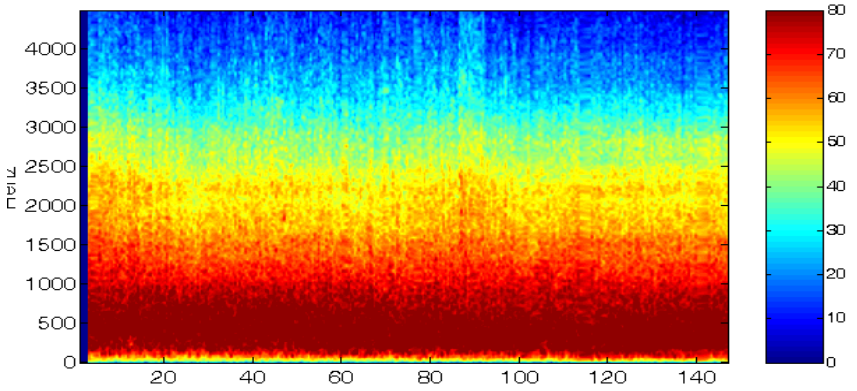
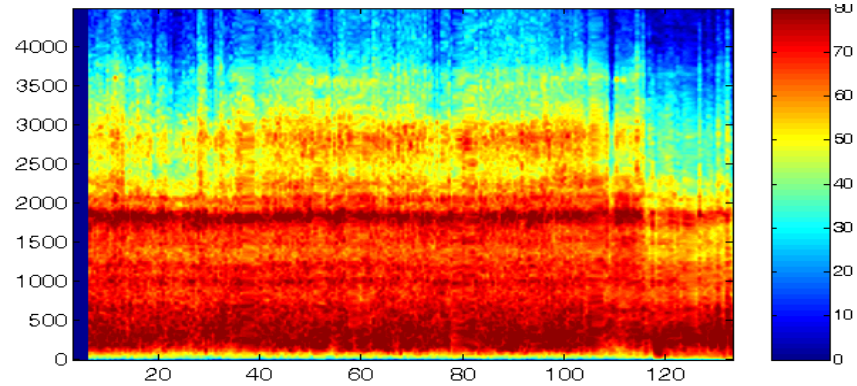


Figure 8: Abnormal Exhale Spectrogram



Other Advantages

The Wind Test® also serves another unique purpose, performance evaluation. In order to be successful, a horse has to be able to breathe while running at pace. While this seems an easy criteria to oblige, it's actually fairly burdensome to the horse. Research in respiratory performance has revealed that the horse *has* to breathe in rhythm with his motion. The speed at which a horse can run and breathe varies with each individual animal and drastically effects performance potential. The Wind Test® can accurately measure the exact pace at which your horse can no longer run and breath effectively. This has two implications for the management of your horses. First, The Wind Test® can accurately identify which horses simply don't have the ability to run and breath at the pace necessary for Graded success. Second, The Wind Test® can identify the exact speed at which your horse stops breathing. For trainers, having your horse running above this pace early in the racing environment is guaranteed to impact closing ability.

Conclusion

The Wind Test® is a unique and entirely non-invasive way of both diagnosing upper airway pathology and identifying your horse's inherent ability to breathe at racing speeds. We look forward to working with you to integrate our system into your racehorse management