

FLAIRTM NASAL STRIPS MAKE BREATHING EASIER FOR HORSES

Susan J. Holcombe, VMD, Ph.D

From the Department of Large Animal Clinical Sciences, College of Veterinary
Medicine, Michigan State University, East Lansing, MI 48624, USA

Introduction

The manufacturers of Flair™ state that the device makes breathing easier and decreases the pressure in the horse's lungs during exercise. The device accomplishes these functions by supporting the lateral wall of the horse's nose, which makes the nasal passage larger. By making the nasal passage larger, the device actually makes breathing easier. If breathing while running at high speed is easier for the horse, than the overall effort it takes for the horse to run at that high speed is less. In this study we attempted to answer the question, Does the Flair™ nasal strip make breathing easier for exercising horses?

At rest, the horse's nostril is shaped like a comma, but as the horse begins to exercise the nostril dilates and becomes circular in shape. The change in shape of the nostril makes the nostril and nasal passage larger, which makes it easier for the horse to breathe. A good analogy that explains this concept is the difference between breathing through a straw versus breathing through a paper towel roll. You have to inhale harder and longer when breathing through the straw compared to the ease of breathing through the paper towel roll. The opening of the straw is very small and it is, therefore, harder to inhale as much air through the straw as you can through the paper towel roll. This same concept applies to the horse's nostril. When the nostril is dilated and larger during exercise, breathing is easier. Horses are obligate nasal breathers, which means they can only breathe through their nose. When people exercise and start to breathe hard, they can open their mouths to breathe. Horses do not have that option, and therefore, must impose many different techniques to make their airway larger during breathing. Indeed, horses increase the amount of air they breathe in a minute from approximately 50 liter/minute at rest to over 1500 liters/minute while galloping. Horses increase the size of the nostril and nasal passage by contracting the muscles around the nostril to expand the nostril and also by contracting blood vessels within the lining of the nasal passage to make the nasal passage larger.

The Flair™ device is meant to support and dilate the part of the nostril called the nasal valve, which is the most narrow section of the nostril. The nasal valve is located approximately 5 inches from the edge of the nostril within the nose. Because the nasal valve is the narrowest part of the nasal passage, this area accounts for most of the effort that is expended during breathing. The Flair™ is meant to make the nasal valve larger by tenting the skin over the nasal valve, thus increasing its diameter and easing airflow.

The human equivalent of the Flair™ is the Breathe Right nasal strip. This device was designed to decrease the symptoms of a disease called sleep apnea and snoring. The results of several studies suggest that the Breathe Right nasal strips live up to their name, and indeed, do improve sleep quality and decrease snoring. Measurements indicate that these breathing improvements are achieved by enlarging the nasal valve area. The Breathe Right nasal strips are frequently used by human athletes. The results of studies performed on human athletes suggest that the Breathe Right nasal strips allow people to breathe easier during strenuous exercise, and exercise at the same intensity with less effort. The obvious question to ask was whether or not the Flair™, the equine equivalent

of the Breathe Right nasal strip, achieves the same effects in horses? The answer to this question, based on our research, is yes.

We used six Standardbred horses in our study to help answer this question. The horses were trained to run on a high-speed treadmill while they wore a facemask. The facemask was used to measure the horse's airflow. We also measured pressure in the airway. Airflow and airway pressures are indices of airway function and allow us to determine how hard the horse is breathing. The horses ran on the treadmill at racing speeds for two minutes while we measured their airway function. They ran once while wearing the Flair™ nasal strip and once without the nasal strip.

Horses wearing the Flair™ nasal strip had lower airway pressures and were able to run at the same speeds while breathing less air per minute compared to when they did not wear the nasal strip. The nasal strip did, indeed, make breathing easier for the horses. By tenting the skin over the bridge of the nose, pulling the skin up and holding it there, the nasal strip increased the size of the nasal passage, allowing the horse to expend less effort to breathe.