

Tongue Ties in Racehorses

For more than a century, racehorse trainers have tied horses' tongues to the front and side when they work or race. The purpose, trainers say, is to reduce breathing noises and help the horses perform better. But, until now, researchers have never confirmed that the tongue tie actually has a physical effect on the upper respiratory structures.

“My aim was to objectively assess if tongue ties contribute to upper airway stability,” said Heather J. Chalmers, DVM, Dipl. ACVR, assistant professor of radiology at the University of Guelph's Ontario Veterinary College in Ontario, Canada. “Based on my research, I think they do.”

Chalmers and colleagues investigated 12 Standardbred racehorses with and without tongue ties at a standstill. The team applied the tongue ties using a standard industry procedure, which involves pulling the tongue as forward as possible and tying it close to its base around the lower jaw with a nylon strap. The tongue is then pulled out to the side of the horse's mouth. The horses did not appear uncomfortable during the procedure, Chalmers said.

Then the team took ultrasound images of five different regions of the upper respiratory tract, including the positions of several bones and cartilages responsible for supporting the upper airway, attaching the windpipe to the back of the throat, and joining the tongue to the skull. The team measured these structures' positions and their relationship to each other using an ultrasound technique that Chalmers developed in earlier work.

The researchers found that when the horses' tongues were tied, the upper respiratory structures' positions were more compatible with upper airway stability, Chalmers said. Their main findings concerned the thyroid cartilage and the basihyoid bone, a small bone in the hyoid apparatus; the hyoid apparatus is a set of bones that maintains the larynx (“voice box”) in place. In their study, Chalmers and her associates found that the basihyoid bone's lingual process—a bony projection that goes from the basihyoid bone to the root of the tongue—was deeper, and the thyroid cartilage was lower when the tongue tie was applied. Previous research by Chalmers and others suggests that these structural positions allow the horse to breathe better.

In particular, she said, horses suffering from intermittent dorsal displacement of the soft palate (iDDSP) might benefit from a tongue tie, as her previous work revealed a link between

iDDSP and basihyoid position. iDDSP occurs when the soft palate displaces dorsally (moves abnormally in an upward direction) so the end of the structure rests above the epiglottis instead of below, thereby obstructing air flow.

The practice of tongue tying, however, has led to significant welfare debates, and in some countries the practice is illegal during the winter months because of the risk of frostbite to the tongue. In Switzerland, tongue tying is illegal year-round.

But Chalmers said the practice might actually be beneficial to racehorses and, if done correctly, does not appear to cause the horses stress or pain. “The horses do not even react when the tongue tie is applied; it does not seem to bother them in my experience,” she said.

Additionally, “some would say that tongue ties make racing safer by ensuring that the horse does not flip his tongue above the bit, thereby ensuring that the driver or rider can maintain control of the horse during the race,” she added.

The study, "[The use of a tongue tie alters laryngohyoid position in the standing horse,](#)" was published in the *Equine Veterinary Journal*.