

## WHAT CAUSES A HORSE TO 'BLEED' FROM THE LUNGS?

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The answer to this question has been missing all along from the debate on the racing medication issue. Yet 'bleeding' was the problem that triggered approval of race-day medication in the 1970s. It follows that the cause of 'bleeding' is relevant to a resolution of the U.S. medication issue. To treat any disease, the cause must be removed. In 1974, I published evidence that horses bled from the lungs and not, as previously assumed, from the nasal cavity. I have maintained a research interest in the cause of 'bleeding' ever since. Forty years later I conclude that:

- 'Bleeding' is the result of throttling.
- The end-point is waterlogging of the lungs (pulmonary edema)
- Asphyxia results from instability and dorsal displacement of the soft palate
- This, in turn, is caused by the loss of what should be a negative pressure in the oral cavity. In the running horse at liberty, an oral vacuum clamps the soft palate to the root of the tongue, allowing the horse to breathe freely.
- This vital 'vacuum-packaging' of the soft palate is lost by the bit breaking what should be an airtight seal at the lips.

The racehorse faces the same fear of 'drowning' as a man being waterboarded. Exercise-induced pulmonary hemorrhage (EIPH) is, in my opinion, the same as a disease in man called negative pressure pulmonary edema (NPPE). An internet search for NPPE will reveal the similarities.

'Bleeding' is only one sign of asphyxia. The 'blood' seen in the windpipe or nostril is heavily blood-stained edema fluid. It is not pure blood. Horses that die do not bleed to death. They die of suffocation, flooding of the lungs and heart failure. Other signs of a moderate degree of asphyxia are premature fatigue and poor performance. Choking sounds may or may not be heard. Signs of severe asphyxia include stumbling, breakdowns, falls, fractures, dislocations and sudden death. A factor that cannot be assessed, except by a horse's behavior, is that of pain. In man, pulmonary edema may be accompanied by intense chest pain, anxiety and panic. It is likely that the horse suffers similarly; yet another reason why a racehorse may collapse.

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Exercise-induced pulmonary hemorrhage is not a good name for the problem and should, I suggest, be replaced by NPPE. EIPH fails to identify its root cause and confuses our thinking about its solution. NPPE in the horse could be prevented by removing the bit. The horse needs air, not a diuretic. To breathe freely it needs a change of management - an update of the rules of racing. Salix doesn't prevent suffocation. A jockey should not be required to limit a horse's access to oxygen.

Scientific evidence indicates it is no longer appropriate that a bit should be mandatory for any horse sport competition. The crossunder bitless bridle provides a humane, painless and more effective method of communication than the Bronze Age bit. Its approval for racing would sweeten the life of racehorses, safeguard the life of jockeys, reduce catastrophic injuries and do much to restore the public's enthusiasm for racing. In sum, a racehorse that does not have a pain in its mouth and is not choked by an oral foreign body, will live longer and run faster.

More information is available in three articles written for non-veterinarians at:

Cook, W.R. (2011): What Causes Soft Palate Problems and Bleeding in Racehorses?  
<http://www.bitlessbridle.com/SoftPalateAndBleeding.pdf>

Cook, W.R. (2014): "A connection between a bit in a horse's mouth, a throttled throat and waterlogged lungs." *The Horse's Hoof*, 54, <http://www.bitlessbridle.com/A%20ConnectionBitWaterloggedLungs.pdf>

Cook, W.R. (2014): "Apart from inflicting oral pain and mental distress, what else does a bit do to a horse?" <http://www.bitlessbridle.com/14apartfromoralpain.pdf>

The primary source material published in veterinary journals can be read by following the links below:

Cook, W.R. (2014): "An endoscopic test for bit-induced nasopharyngeal asphyxia as a cause of exercise-induced pulmonary haemorrhage in the horse." *Equine vet J.* 46, 256-257 ISSN 0425-1644, DOI: 10.1111/evj.12205

Cook, W.R. (2014): A hypothetical etiological relationship between the horse's bit, nasopharyngeal asphyxia and negative pressure pulmonary edema." *Equine Veterinary Education*, 26, 381-389  
<http://www.bitlessbridle.com/14EVE.pdf>