



# Equine Pulse Oximetry Accuracy Tests

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SpO<sub>2</sub> values from the Nonin 8600V Veterinary Pulse Oximeter using the lingual sensor (Model 2000SL) applied to the tongue were compared to directly-measured SaO<sub>2</sub> values from a Radiometer OSM3 co-oximeter, calibrated for equine blood, in five anesthetized horses<sup>1</sup>.

## Material and Methods

Five adult horses, 490 ± 83 kg, were premedicated with IV xylazine and anesthesia was induced with IV diazepam and ketamine. General anesthesia was maintained with halothane in oxygen/nitrogen. Normocapnia was maintained with controlled ventilation. The inspired oxygen concentration was varied by mixing nitrogen in oxygen to obtain SpO<sub>2</sub> readings of approximately 60, 65, 70, 75, 80, 85, 90, 92 and 100%. At the time of each SpO<sub>2</sub> recording, an arterial blood sample was collected for immediate analysis of SaO<sub>2</sub>. Bias (the mean difference between the two readings, SpO<sub>2</sub> – SaO<sub>2</sub>), precision (the standard deviation of the mean difference) and the Pearson correlation coefficient (R-value) for SaO<sub>2</sub> versus SpO<sub>2</sub> were calculated.

## Results

A total of sixty blood samples were collected from five horses. The results are shown in Figure 1. The graph shows excellent data correlation with a bias (precision) of 0.55 (2.57) and an R-value of 0.98 over the entire SaO<sub>2</sub> range tested.

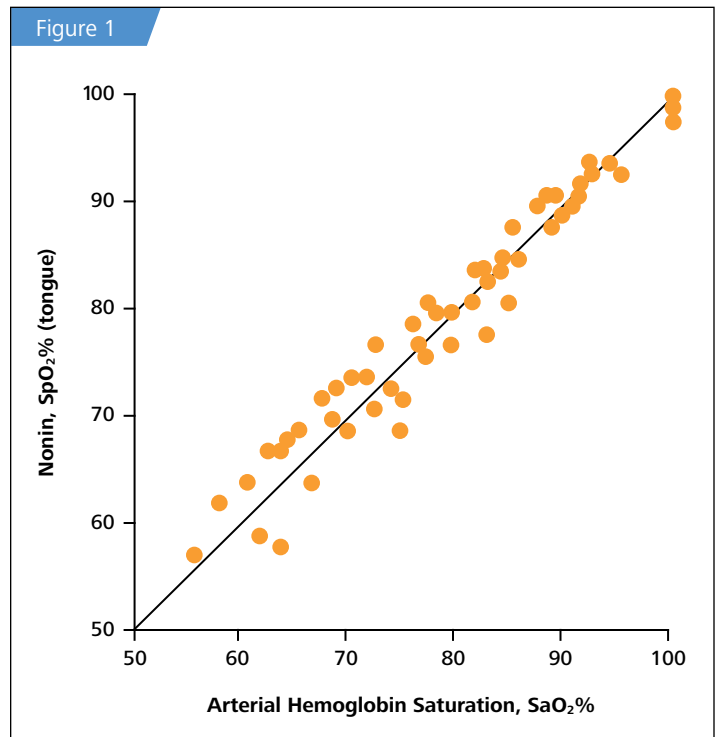
## Conclusions

Based in the findings of this study, the Nonin 8600V Veterinary Pulse Oximeter with the lingual sensor (Model 2000SL) performed accurately and reliably and is suitable for clinical use in anesthetized horses.

<sup>1</sup>Study conducted July 16-22, 1997.

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Hemoglobin saturation determined by the Nonin 8600V oximeter with lingual sensor applied to the tongue plotted against hemoglobin saturation directly measured by a Radiometer OSM3 co-oximeter, with a line of equality.



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