

Evaluation of the usefulness of the portable device Lactate Pro for measurement of lactate concentrations in equine whole blood

Marianne M. Sloet van Oldruitenborgh-Oosterbaan¹, Erica T. W. van den Broek and Astrid J. Spienburg

Correspondence: ¹Corresponding Author: Marianne M.S. van Oldruitenborgh-Oosterbaan, Department of Equine Sciences, Faculty of Veterinary Medicine, University of Utrecht, the Netherlands, Yalelaan 114, 3584 CM Utrecht, e-mail: m.sloet@vet.uu.nl

Blood lactate measurements are commonly used in exercising horses to determine the onset of lactate accumulation and in colic patients to assess clinical status and to indicate prognosis. To study the usability of a portable blood lactate meter based on dry chemistry (Lactate Pro), the data from this instrument were compared to data from a laboratory-used lactate meter based on wet chemistry (ABL 605 blood gas analyzer [ABL]). Heparinized blood samples were obtained from horses participating in a jumping experiment (n = 9), from horses cantering at maximal speed on a racetrack (n = 7), and from patients admitted to the Department of Equine Sciences at Utrecht University for severe colic (n = 13). Seventeen of these samples were tested in duplicate on both instruments to determine the repeatability of the measurements. Blood lactate concentrations measured with the Lactate Pro ranged from 0.8–17.6 mmol/liter and with the ABL from 1.0–18.6 mmol/liter. The correlation between lactate concentrations obtained using the Lactate Pro and values from the ABL was 0.90, and the relationship was represented by the following formula: $y = 0.90 \cdot x + 0.36$, indicating a linear relationship between values produced by the ABL and Lactate Pro. The repeatability for the Lactate Pro was high (0.997), which is comparable to the ABL (0.999).

Key Words: Horses • lactate measurements • Lactate Pro