

A Clinical Evaluation of SunTech AccuVet SpO₂ Sensors on Dogs and Cats

Introduction

Pulse oximetry is a method of using red and infrared light to measure the oxygen saturation of hemoglobin (SpO₂) in arterial blood. Although arterial blood gas is the gold standard for measuring SpO₂, it is a complex method that is not commonly used in practice. As a result, pulse oximetry is the most convenient way to measure oxygenation.

To measure SpO₂ with a pulse oximeter, a probe is placed on the patient. Preferred locations are hairless, minimally-pigmented areas of the body including the tongue, lip, prepuce, vulva, and interdigital space. The probe passes two wavelengths of light through the tissue.

Oxygenated hemoglobin absorbs more infrared light and allows more red light to pass through. Deoxygenated (or reduced) hemoglobin absorbs more red light and allows more infrared light to pass through. The difference in light absorption is calculated and the final figure is displayed as a percentage (SpO₂%).¹

Purpose

The purpose of this data collection was to demonstrate AccuVet SpO₂ is comparable to the Nellcor SpO₂ when using Y-sensors on veterinary patients. The Nellcor SpO₂ has been clinically validated in humans and served as the reference source for this testing.

Methodology

This equivalency study consisted of a total of 25 (N=25) veterinary subjects. This study included 48% (N=12) male and 52% (N=13) female subjects. 76% (N=19) canine and 24% (N=6) feline subjects. Participants were selected only based on species (canine or feline) and whether they were already pre-scheduled for a surgical procedure or dental cleaning. Veterinary subjects used for testing were not anesthetized solely for the purposes of this study. Once the patient was included, the data for that subject was not excluded from the study if SpO₂ values were obtainable. This clinical testing was not intended to diagnose conditions; therefore, every effort was made to minimize risk to volunteer subjects through consideration for selecting only relatively healthy subjects and application of early

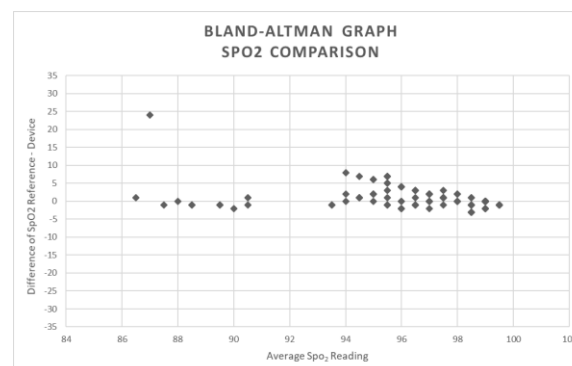
testing discontinuation criteria to reduce the likelihood of an emergency. Both sensors were applied simultaneously to the patient in the same location. Once stable results appeared on both devices, a screening value was obtained. Following this, results were recorded every 30-60 seconds for a total of 5 measurements.

Results

For the device/sensors to be considered equivalent, the data needed to pass a 95% confidence interval of less than or equal to +/-2 to pass.

The SpO₂ measurements Lower Confidence Interval (CI) is 0.24 and the Upper Confidence Interval (CI) is 1.32 which is between the +/-2 requirement specified; therefore, the Vet30 with ITEC and Y-sensor (white) passes the requirement.

	Mean Difference	Standard Deviation	95%CI Lower Limit	95%CI Upper Limit	Criteria Result (+/- 5 mmHg)
SpO ₂	0.78	3.08	-0.24	1.32	Pass



References

1. "Using pulse oximetry in veterinary medicine | VetGirl CE Blog." VETgirl. N.p., 14 Apr. 2014. Web. 12 July 2017.