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Accuracy of MedAir Oxy[√]TM (OxyCheckTM) Fingertip Pulse Oximeter Is Superior to Competitor's Device



MedAir OxyCheck



**SPO Medical
PulseOx 5500TM**

SUMMARY:

An independent laboratory study found the accuracy of MedAir OxyCheck to be within plus or minus two digits (± 2) while SPO Medical PulseOx 5500 was within plus or minus five digits (± 5). The study was an industry standard breathe-down protocol of induced hypoxemia in normal subjects.

PURPOSE:

To assess the accuracy of two fingertip pulse oximeter devices compared to arterial blood saturation (SaO_2) levels in normal subjects. The devices tested were MedAir OxyCheck and SPO Medical PulseOx 5500.

METHODS:

Twelve normal subjects underwent induced hypoxia testing at the University of California San Francisco Hypoxia Research Laboratory. Each device was attached to a subject's finger. Hypoxia was induced to five levels of oxyhemoglobin saturation (between 60% and 100%) by having subjects breathe a mixture of inspired gas. Each level was held in a stable plateau for approximately two minutes while pulse oximeter readings and arterial blood samples were taken simultaneously. Twenty-five samples were obtained from each subject.

Accuracy is defined as the closeness of agreement between a test result and an accepted reference value. The A_{rms} value was calculated with the reference value from arterial oxygen saturation (SaO_2) determined using the Radiometer OSM-3 multi-wavelength co-oximeter.

May 25, 2007

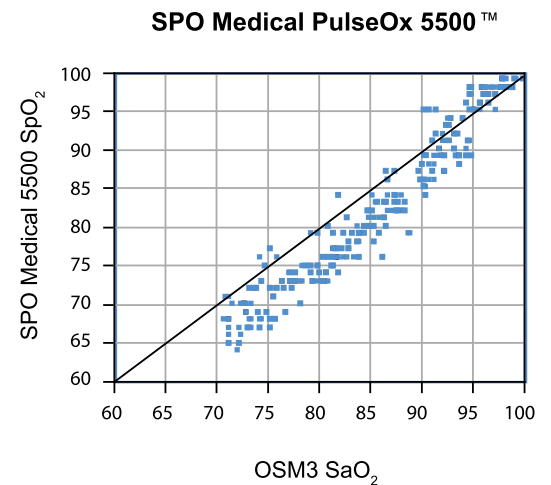
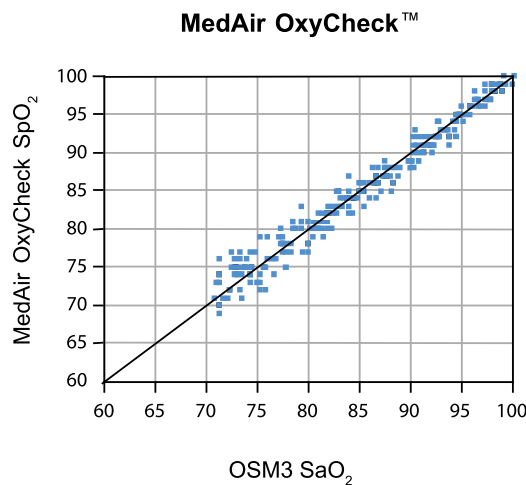
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RESULTS:

MedAir OxyCheck had superior accuracy as noted by the lower A_{rms} compared to the SPO Medical PulseOx 5500. The accuracy of MedAir OxyCheck was consistent throughout the range of 70% to 100%, with no signs of deterioration in the lower ranges of oxygenation. The SPO Medical PulseOx 5500 had decreased accuracy at values less than 90% as seen below. MedAir OxyCheck A_{rms} was calculated as 1.40, which equates to accuracy within plus or minus two digits (± 2) of the observed value. SPO Medical PulseOx 5500 A_{rms} was calculated as 4.20, which equates to accuracy within plus or minus five digits (± 5).



The blue dots are the SpO₂ values of the pulse oximeter plotted against the SaO₂ value of the co-oximeter. Note how tightly the MedAir OxyCheck data points align with the black line, representing a consistent and good correlation to the "gold standard" of co-oximetry.

A_{rms}

SaO ₂	MedAir OxyCheck	SPO Medical PulseOx 5500
Entire Range	1.40	4.20
90 to 100%	0.93	2.55
80 to 89.9%	1.17	5.27
70 to 79.9%	2.07	4.73

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