

## **Averaging Time, Desaturation Level, Duration and Extent**

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### **Background**

Pulse oximeter saturation values are usually obtained by averaging over preceding measurements. This study investigates the dynamics between the averaging time and desaturation level, duration and extent.

### **Methods and Results**

Prospective observational study of 15 preterm infants. Oxygen saturation was recorded for 168 h using a pulse oximeter. The raw red-to-infrared data were reprocessed using seven different averaging times to determine the number of desaturations below four thresholds and for seven different minimal desaturation durations. The total number of desaturations <80% was 339 with an averaging time of 16 s and 1958 with an averaging time of 3 s (minimal event duration >0 s). There was a significantly lower pulse oximeter saturation nadir with the shorter averaging time, while the maximum duration was significantly longer when using a 16 s averaging time.

### **Conclusions:**

When using pulse oximeters, more attention should be given to averaging time and duration of desaturations.