

**THE EFFECT OF SENSOR LOCATION ON THE RESULTS AND STABILITY OF
TRANSCUTANEOUS MEASUREMENT OF OXYGEN AND CARBON DIOXIDE PRESSURE.**

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Transcutaneous measurement of oxygen and carbon dioxide pressure (tcpO₂ and tcpCO₂) was found useful in gas exchange monitoring in different clinical settings. However the relationship between tcpO₂ pulse oximetry (SpO₂) and arterial blood gases (ABG) is not clear. Aim 1/to compare tcpO₂ and tcpCO₂ with SpO₂ and ABG, 2/to evaluate the effect of sensor location on the results and stability of tcpO₂ and tcpCO₂ measurement 3/to assess the impact of body composition on tcpO₂ and tcpCO₂. Material and methods: tcpO₂ and tcpCO₂ were measured in healthy volunteers at three locations right second intercostal space lateral surface of the abdomen and the inner surface of the left arm. The results were recorded 10,15,20 min after sensor fixation and compared with SpO₂ at the same time points ABG were assessed min after electrode placement on the chest. Body composition was assessed by bioimpedance. Results: tcpO₂ was stable on the chest, on the arm and abdomen it gradually increased and reached the highest value at 20min. tcpCO₂ stabilized at 10min in all 3 locations. No significant correlations between tcpO₂ and SpO₂ or PaO₂ were found. tcpCO₂ correlated with PaCO₂ (r=0.66 for the arm and chest at 20min, p<0.05). Both tcpO₂ and tcpCO₂ were not influenced by body composition. Conclusions: the value tcpO₂ in non-invasive monitoring of blood oxygenation was not unequivocally confirmed; tcpCO₂ reliably reflects PaCO₂, irrespective of sensor location. Body composition does not affect tcpO₂ and tcpCO₂.