

In a comparison of the two membrane systems in a group of 12 healthy volunteers breathing room air, lower limb readings obtained using the correct ($P_{tc}O_2$) membranes were a median of 12 mmHg (interquartile range 5–20 mmHg; $P < 0.001$) higher; upper limb readings obtained using the correct ($P_{tc}O_2$) membranes were a median of 10 mmHg (interquartile range 3–19 mmHg; $P < 0.001$) higher.

In the third study, in which we used the same device to compare the $P_{tc}O_2$ achieved with various oxygen delivery devices, this measurement error would have been consistent across all arms of the study. This non-differential information error would have created a bias toward the null hypothesis. Therefore, whilst the absolute values for the data were incorrect, the direction and implications of the significant associations reported in that study are sound.³

We are in the process of replicating our work using $P_{tc}O_2$ -specific membranes. In the meantime, we sincerely apologize for this mistake.

References

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Retraction of three papers investigating transcutaneous oxygen tensions in healthy volunteers

In this issue, we have retracted two papers and partially retracted a third that we published in *Diving and Hyperbaric Medicine* (DHM).¹⁻³ These papers described upper and lower limb transcutaneous oxygen measurements ($P_{tc}O_2$) in healthy volunteers or $P_{tc}O_2$ values using different oxygen delivery devices. We recorded lower $P_{tc}O_2$ levels than had been described previously, and in the papers on normal values raised “*the possibility of a diffusion barrier*” as a potential explanation.

We have now determined that those findings were the result of measurement error associated with the use of incorrect membranes that cover the oxygen sensors; specifically, the testing incorporated membranes designed for combined $P_{tc}O_2$ and transcutaneous carbon dioxide tension ($P_{tc}CO_2$) measurement and not solely for $P_{tc}O_2$ measurement. As a result, the values for both upper and lower limb $P_{tc}O_2$ that we reported in healthy volunteers are systematically low.