

INFLUENCE OF BAROMETRIC PRESSURE ON HYPOXIC DOSE DURING A TERRESTRIAL-ALTITUDE TRAINING CAMP IN ELITE SWISS ROWERS

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SO WHAT?



Introduction & Problematic

In altitude training camp, the external load is commonly quantified using hypoxic dose^{1,2}, integrating the altitude and the time spent at this altitude (see left side of "So what?"). Although several limitations of this approach have been described, no alternative method has yet been readily applicable in field. Recent evidence showed that barometric pressure (BP) should also be considered when quantifying external load³, as it has been overlooked in most previous studies conducted during altitude camps⁴.

How does accounting for barometric pressure (BP) affect hypoxic dose and the evolution of physiological stress during an altitude training camp in elite rowers?



Methodology



14 elite rowers: 7 women / 7 men
AVG: 26.5 ± 1.9 years



21 days / 20 nights
Altitude: 2063 m above sea level



Hypoxic dose (km · h)
Altitude x duration

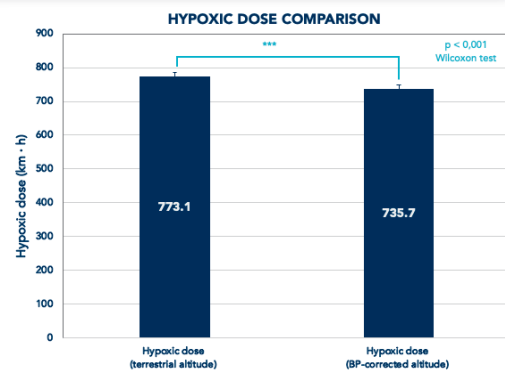
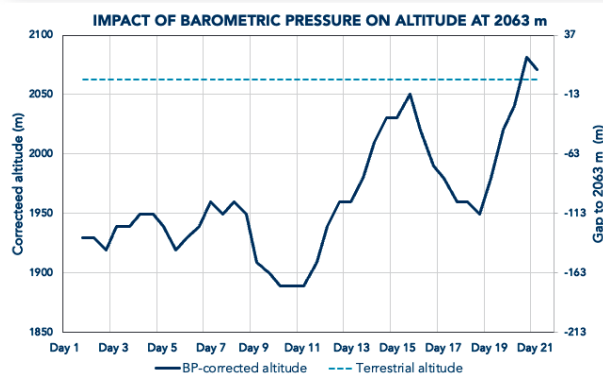


Barometric pressure (BP in hPa)
Numerical barometer (Greisinger GPB 3300)
2x / day: at 7 am and 8 pm



Corrected altitude (m): $44330 * (1 - ((P_{MES} / P_0)^{1/5.255}))$
 P_{MES} = measured barometric pressure
 P_0 = sea level barometric pressure

Results



Conclusion

Considering barometric pressure is therefore important when quantifying hypoxic dose during altitude training camps. In our case, the difference between terrestrial and corrected altitude exceeded 160 m, resulting in a significant difference in hypoxic dose. This may influence physiological responses and must be considered when interpreting physiological changes during an altitude training camp with elite athletes.

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