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| **Data averaging does not affect dead-space ventilation calculation during CPET** |
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| **Introduction/Aim:** Dead space ventilation (VD/VT) at rest and during exercise is an importantdiagnostic and prognostic parameter within cardiopulmonary exercise testing (CPET). Calculating VD/VT requires the PaCO2 from an arterial blood gas (ABG) paired at the same time with the pressure of exhaled CO2 (PECO2) and VE. There are no standards on the ideal data averaging settings for PECO2 and VE. This study was conducted to determine the effects of varied data averaging on VD/VT calculations in patients referred for clinical CPET.**Method:** CPET measurements (Quark, Cosmed, It.) that included ABG samples at baseline and near VO2 peak were reviewed. PECO2, and VE from end tidal sample average intervals of breath by breath (software default), 10, 20 seconds and rolling time average were used to calculate VD/VT. Results were compared using repeated measures ANOVA. The identification of elevated VD/VT (>0.22) was compared across data averaging methods. Data is expressed as mean (SD).**Results:** Data from 21 patients (7 male), mean age (56 (17) years) were reviewed. Data averaging did not affect calculation of PECO2, VE or VD/VT at rest or during exercise (Table). Only two patients (10%) would have been reclassified as having elevated VD/VT during exercise when assessed by 10 sec averaging as compared to breath by breath.

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| Exercise | Breath  | 10 sec | 20 sec | Rolling | P value |
| PECO2 | 24.8 (3.9) | 24.5 (4.0) | 24.8 (4.0) | 24.7 (4.1) | 0.31 |
| VE | 54.8 (19.0) | 56.1 (18.0) | 56.6 (17.1) | 56.3 (15.3) | 0.62 |
| VD/VT | 0.22 (0.10) | 0.23 (0.10) | 0.23 (0.10) | 0.23 (1.0) | 0.30 |

**Conclusion:** Variations in data averaging of exhaled end tidal measures both at rest and during exercise did not affect the calculation of dead space ventilation. While there were some instances where the identification of borderline elevated dead space changed, variations in end tidal averaging methods did not affect clinical interpretation. **Key Words:** deadspace, CPET, data averaging, end tidal gas analysis**Grant Support:** |