**3.0 RESULTS**

*3.1 Participant characteristics*

Six men and six women with a mean age of 25.3 (5.31) years, a BMI 23.7 (2.4) kg/m2 and normal lung function participated in the study. Participant characteristics are outlined in **Table 1**.

*3.2 Diffusing capacity*

Data from diffusing capacity measurements are represented in **Table 2** and **Figure 2**. DL,COc (**Figure 2A**) and KCO (**Figure 2B**) increased from upright standing to supine position (DL,COc, p<0.001; KCO, p<0.001), prone position (DL,COc, by 1.783 (95%CI 1.008 to 2.558), p=0.028; KCO by 0.518 (95%CI 0.424 to 0.612), p=0.018) and handstand (DL,COc, p<0.001; KCO, p<0.001). A decrease in VA (**Figure 2C**) and VIN were found from upright standing to handstand (VA, p=0.040; VIN, p= p<0.001). DL,COc were lower in prone position compared to supine position (p=0.007) and handstand (p=0.022), whereas no difference was found between supine position and handstand (p=0.17), **Figure 2A**. KCO was found to be higher in supine position (p<0.001) and handstand (p<0.001) compared to prone position, whereas similar results were found for supine position and handstand (p=0.346), **Figure 2B**. VA were lower in handstand compared to supine position (p=0.032) and prone position (p<0.001), **Figure 2C**. The order of the measurements had no significant effect on any of the outcome variables.

*3.3 Respiratory oscillometry*

Data from respiratory oscillometry are represented in **Table 2**. R5 increased from upright standing to supine position (p<0.001) and handstand (p<0.001), whereas R5-20 increased from upright standing to handstand (p=0.019). AX increased from upright standing to handstand (p<0.001). Vt was similar between the four postural positions. The order of the measurements had no significant effect on any of the outcome variables.

**Figure 2:** Change in pulmonary diffusing capacity during postural changes

Et billede, der indeholder tekst, diagram, Plan, Teknisk tegning

Indhold genereret af kunstig intelligens kan være forkert.

**Legend:** Change in pulmonary diffusing capacity for carbon monoxide corrected for haemoglobin (DL,COc) (A), carbon monoxide transfer coefficient (KCO) (B) and alveolar volume (VA) (C) during postural changes. *Abbreviations:* F, female; M, male.

**TABLES:**

**Table 1:** Participant characteristics.

|  |  |
| --- | --- |
| **Characteristic** | **Value** |
| Sex (F/M) | 6/6 |
| Age (years) | 25.3 (5.31) |
| Height (cm) | 173.0 (11.6) |
| Weight (kg) | 71.7 (12.9) |
| BMI (kg/m2) | 23.7 (2.4) |
| FEV1 (L) | 4.37 (1.07) |
| FEV1 predicted (%) | 111 (13) |
| FVC (L) | 5.36 (1.21) |
| FVC predicted (%) | 117 (7) |
| TLC (L) | 6.47 (1.46) |
| TLC predicted (%) | 103 (6) |

**Legend:** Participant characteristics. Data are represented as mean (SD). *Abbreviations:* BMI, body mass index; FEV1, forced expiratory volume in 1 second; FVC, forced vital capacity; TLC, total lung capacity.

**Table 2:** Postural effects on diffusing capacity, respiratory oscillometry and cardiac hemodynamic

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Upright standing** | | **Supine** | **Prone** | **Handstand** |
| **Diffusing capacity measurements** | | | | | |
| DL,COc (mmol/min/kPa) | | 11.20 (2.58) | 13.00 (2.61)\* | 12.30 (2.81)\* | 13.40 (2.92)\* |
| KCO (mmol/min/kPa) | | 1.76 (0.13) | 2.19 (0.16)\* | 1.92 (0.19)\* | 2.30 (0.22)\* |
| VA (L) | | 6.40 (1.61) | 5.97 (1.13) | 6.40 (1.53) | 5.86 (1.48)\* |
| BHT (s) | | 10.4 (0.4) | 10.6 (0.4) | 10.6 (0.5)\* | 10.4 (0.4) |
| VIN (L) | | 5.02 (1.14) | 4.68 (0.87) | 5.00 (1.08) | 4.04 (1.00)\* |
| VIN % of VIN,max (%) | | 97.5 (2.67) | 91.70 (6.90)\* | 97.30 (2.24) | 78.30 (8.71)\* |
| **Respiratory oscillometry** | | | | | |
| R5  (cmH2O.s/L) | | 2.8 (0.63) | 3.83 (0.69)\* | 2.74 (0.79) | 4.34 (1.56)\* |
| R5 CV (%) | | 8.28 (3.53) | 8.13 (2.95) | 5.42 (2.18) | 8.78 (6.29) |
| R5-20 (cmH2O.s/L) | | 0.25 (0.29) | 0.65 (0.44) | 0.13 (0.24) | 0.74 (0.89)\* |
| AX (cmH2O/L) | | 4.85 (2.81) | 7.16 (3.90) | 3.43 (2.14) | 13.20 (9.41)\* |
| AX CV (%) | | 15.20 (12.20) | 22.40 (15.40) | 18.60 (9.91) | 25.30 (12.70)\* |
| Vt (L) | | 1.08 (0.39) | 0.99 (0.22) | 1.13 (0.38) | 1.36 (0.48) |
| **Other measurements** | | | | | |
| Blood pressure systolic (mmHg) | | 127 (9) | 118 (11) | 141 (11) | 182 (25)\* |
| Blood pressure diastolic (mmHg) | | 82 (10) | 69 (10)\* | 95 (15)\* | 132 (18)\* |
| SAT (%) | | 98.3 [97.9, 99.0] | 98.5 [98.0, 99.1] | 98.5 [98.0, 98.5] | 98.0 [97.5, 98.8] |
| Pulse (BPM) | | 80.3 (13.6) | 74.5 (14.4)\* | 75.3 (13.7)\* | 89.1 (16.2) |

**Legend:** Effects of postural changes on diffusing capacity measurements and respiratory oscillometry. Data are represented as mean (SD); otherwise median [Q1,Q3]. \*Indicates significant difference from upright standing. *Abbreviations*: AX, reactance area; BHT, breath hold time; DL,COc, diffusing capacity for carbon monoxide corrected for hemoglobin; KCO, transfer coefficient for carbon monoxide; R5 resistance at 5 Hz; R5-20, resistance at 5-20 Hz; SAT, saturation; VA, alveolar volume; VIN, inspiratory volume; Vt, tidal volume.