**ANALYSIS: PD+PA vs. PD-PA vs. Controls**

**MINUTE VOLUME**

**Log-Linear Regression**

**Repeated Measures ANOVA**

| **Within Subjects Effects**  |
| --- |
|  | **Sphericity Correction**  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| Time  |  | Greenhouse-Geisser  |  | 80.703  | ᵃ  | 4.790  | ᵃ  | 16.850  | ᵃ  | 2.609  | ᵃ  | 0.028  | ᵃ  |
| Time ✻ GroupF  |  | Greenhouse-Geisser  |  | 276.075  | ᵃ  | 9.579  | ᵃ  | 28.821  | ᵃ  | 4.463  | ᵃ  | < .001  | ᵃ  |
| Residual  |  | Greenhouse-Geisser  |  | 1113.431  |  | 172.424  |  | 6.458  |  |  |  |    |  |
|  |
| Note.  Type III Sum of Squares  |
| ᵃ Mauchly's test of sphericity indicates that the assumption of sphericity is violated (p < .05).  |

| **Between Subjects Effects**  |
| --- |
|  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| GroupF  |  | 818.1  |  | 2  |  | 409.06  |  | 5.832  |  | 0.006  |  |
| Residual  |  | 2525.0  |  | 36  |  | 70.14  |  |  |  |    |  |
|  |
| *Note.*  Type III Sum of Squares  |

**Assumption Checks**

| **Test of Sphericity**  |
| --- |
|  | **Mauchly's W**  | **p**  | **Greenhouse-Geisser ε**  | **Huynh-Feldt ε**  |
| Minute Volume  |  | 0.004  |  | < .001  |  | 0.435  |  | 0.510  |  |
|  |

**Post Hoc Tests**

| **Post Hoc Comparisons - GroupF**  |
| --- |
|  |  | **Mean Difference**  | **SE**  | **t**  | **p holm**  |
| Control  |  | PD-PA  |  | -0.713  |  | 0.922  |  | -0.773  |  | 0.445  |  |
|    |  | PD+PA  |  | -3.579  |  | 1.049  |  | -3.411  |  | 0.005  |  |
| PD-PA  |  | PD+PA  |  | -2.866  |  | 1.191  |  | -2.406  |  | 0.043  |  |
|  |

**Descriptives Plot (SE)**



**Descriptives Plot (95% CI)**



**RESPIRATORY RATE**

**Results**

**Repeated Measures ANOVA**

| **Within Subjects Effects**  |
| --- |
|  | **Sphericity Correction**  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| Time  |  | Greenhouse-Geisser  |  | 493.839  | ᵃ  | 5.337  | ᵃ  | 92.524  | ᵃ  | 3.468  | ᵃ  | 0.004  | ᵃ  |
| Time ✻ GroupF  |  | Greenhouse-Geisser  |  | 673.234  | ᵃ  | 10.675  | ᵃ  | 63.067  | ᵃ  | 2.364  | ᵃ  | 0.010  | ᵃ  |
| Residual  |  | Greenhouse-Geisser  |  | 5126.741  |  | 192.147  |  | 26.681  |  |  |  |    |  |
|  |
| Note.  Type III Sum of Squares  |
| ᵃ Mauchly's test of sphericity indicates that the assumption of sphericity is violated (p < .05).  |

| **Between Subjects Effects**  |
| --- |
|  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| GroupF  |  | 1716  |  | 2  |  | 857.9  |  | 2.716  |  | 0.080  |  |
| Residual  |  | 11371  |  | 36  |  | 315.9  |  |  |  |    |  |
|  |
| *Note.*  Type III Sum of Squares  |

**Assumption Checks**

| **Test of Sphericity**  |
| --- |
|  | **Mauchly's W**  | **p**  | **Greenhouse-Geisser ε**  | **Huynh-Feldt ε**  |
| Respiratory Rate  |  | 0.014  |  | < .001  |  | 0.485  |  | 0.580  |  |
|  |

**Post Hoc Tests**

| **Post Hoc Comparisons - GroupF**  |
| --- |
|  |  | **Mean Difference**  | **SE**  | **t**  | **p holm**  |
| Control  |  | PD-PA  |  | -0.907  |  | 1.957  |  | -0.464  |  | 0.646  |  |
|    |  | PD+PA  |  | -5.173  |  | 2.226  |  | -2.324  |  | 0.078  |  |
| PD-PA  |  | PD+PA  |  | -4.266  |  | 2.528  |  | -1.687  |  | 0.200  |  |
|  |

**Descriptives Plot (SE)**



**Descriptives Plot (95% CI)**



**TIDAL VOLUME**

**Repeated Measures ANOVA**

| **Within Subjects Effects**  |
| --- |
|  | **Sphericity Correction**  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| Time  |  | Greenhouse-Geisser  |  | 0.433  | ᵃ  | 6.215  | ᵃ  | 0.070  | ᵃ  | 1.652  | ᵃ  | 0.131  | ᵃ  |
| Time ✻ GroupF  |  | Greenhouse-Geisser  |  | 0.471  | ᵃ  | 12.430  | ᵃ  | 0.038  | ᵃ  | 0.898  | ᵃ  | 0.552  | ᵃ  |
| Residual  |  | Greenhouse-Geisser  |  | 9.442  |  | 223.742  |  | 0.042  |  |  |  |    |  |
|  |
| Note.  Type III Sum of Squares  |
| ᵃ Mauchly's test of sphericity indicates that the assumption of sphericity is violated (p < .05).  |

| **Between Subjects Effects**  |
| --- |
|  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| GroupF  |  | 0.590  |  | 2  |  | 0.295  |  | 0.411  |  | 0.666  |  |
| Residual  |  | 25.853  |  | 36  |  | 0.718  |  |  |  |    |  |
|  |
| *Note.*  Type III Sum of Squares  |

**Assumption Checks**

| **Test of Sphericity**  |
| --- |
|  | **Mauchly's W**  | **p**  | **Greenhouse-Geisser ε**  | **Huynh-Feldt ε**  |
| Tidal Volume  |  | 0.011  |  | < .001  |  | 0.565  |  | 0.696  |  |
|  |

**Post Hoc Tests**

| **Post Hoc Comparisons - GroupF**  |
| --- |
|  |  | **Mean Difference**  | **SE**  | **t**  | **p holm**  |
| Control  |  | PD-PA  |  | -0.031  |  | 0.093  |  | -0.329  |  | 1.000  |  |
|    |  | PD+PA  |  | -0.096  |  | 0.106  |  | -0.902  |  | 1.000  |  |
| PD-PA  |  | PD+PA  |  | -0.065  |  | 0.121  |  | -0.540  |  | 1.000  |  |
|  |

**Descriptives Plot (SE)**



**Descriptives Plot (95% CI)**



**RSSQ RESPIRATORY VOLUME**

**Rssq Vol resp by group**

| **ANOVA** |
| --- |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sum of Squares** | **df** | **Mean Square** | **F** | **p** |
| GroupF |  | 0.224 |  | 2 |  | 0.1118 |  | 9.94 |  | < .001 |  |
| Residuals |  | 0.405 |  | 36 |  | 0.0112 |  |   |  |   |  |
|  |

**Post Hoc Tests**

| **Post Hoc Comparisons - GroupF** |
| --- |
| **Comparison** |  |
| **GroupF** |  | **GroupF** | **Mean Difference** | **SE** | **df** | **t** | **ptukey** |
| Control |  | - |  | PD - PA |  | -0.0677 |  | 0.0404 |  | 36.0 |  | -1.67 |  | 0.229 |  |
|   |  | - |  | PD + PA |  | -0.2041 |  | 0.0460 |  | 36.0 |  | -4.43 |  | < .001 |  |
| PD - PA |  | - |  | PD + PA |  | -0.1364 |  | 0.0523 |  | 36.0 |  | -2.61 |  | 0.034 |  |
|  |

**Descriptive Plot (SE)**



**RSSQ RESPIRATORY AMPLITUDE (RA) AND PERIOD (RP)**

| **Kruskal-Wallis** |
| --- |
|  |  |  |  |  |  |  |  |
|  | **χ²** | **df** | **p** |
| RArssq |  | 14.91 |  | 2 |  | < .001 |  |
| RPrssq |  | 7.72 |  | 2 |  | 0.021 |  |
|  |

## Dwass-Steel-Critchlow-Fligner pairwise comparisons

| **Pairwise comparisons - RArssq** |
| --- |
|  |  |  |  |  |  |  |  |
|  |  | **W** | **p** |
| Control |  | PD - PA |  | 3.80 |  | 0.007 |  |
| Control |  | PD + PA |  | 4.54 |  | 0.001 |  |
| PD - PA |  | PD + PA |  | 2.62 |  | 0.064 |  |
|  |

**PLOT**



| **Pairwise comparisons - RPrssq** |
| --- |
|  |  |  |  |  |  |  |  |
|  |  | **W** | **p** |
| Control |  | PD - PA |  | 3.220 |  | 0.023 |  |
| Control |  | PD + PA |  | 3.027 |  | 0.032 |  |
| PD - PA |  | PD + PA |  | 0.138 |  | 0.922 |  |
|  |

**PLOT**



**HEART RATE**

**Results**

**Repeated Measures ANOVA**

| **Within Subjects Effects**  |
| --- |
|  | **Sphericity Correction**  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| Time  |  | Greenhouse-Geisser  |  | 731.601  | ᵃ  | 3.229  | ᵃ  | 226.567  | ᵃ  | 4.429  | ᵃ  | 0.004  | ᵃ  |
| Time ✻ GroupF  |  | Greenhouse-Geisser  |  | 414.607  | ᵃ  | 6.458  | ᵃ  | 64.199  | ᵃ  | 1.255  | ᵃ  | 0.281  | ᵃ  |
| Residual  |  | Greenhouse-Geisser  |  | 5946.079  |  | 116.246  |  | 51.151  |  |  |  |    |  |
|  |
| Note.  Type III Sum of Squares  |
| ᵃ Mauchly's test of sphericity indicates that the assumption of sphericity is violated (p < .05).  |

| **Between Subjects Effects**  |
| --- |
|  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| GroupF  |  | 2103.563  |  | 2  |  | 1051.781  |  | 0.495  |  | 0.614  |  |
| Residual  |  | 76465.579  |  | 36  |  | 2124.044  |  |  |  |    |  |
|  |
| Note.  Type III Sum of Squares  |

**Assumption Checks**

| **Test of Sphericity**  |
| --- |
|  | **Mauchly's W**  | **p**  | **Greenhouse-Geisser ε**  | **Huynh-Feldt ε**  |
| Heart Rate  |  | 6.550e -4  |  | < .001  |  | 0.362  |  | 0.413  |  |
|  |

**Post Hoc Tests**

| **Post Hoc Comparisons - GroupF**  |
| --- |
|  |  | **Mean Difference**  | **SE**  | **t**  | **p holm**  |
| Control  |  | PD-PA  |  | -0.014  |  | 0.024  |  | -0.573  |  | 0.685  |  |
|    |  | PD+PA  |  | -0.044  |  | 0.028  |  | -1.596  |  | 0.357  |  |
| PD-PA  |  | PD+PA  |  | -0.030  |  | 0.031  |  | -0.962  |  | 0.685  |  |
|  |

**Descriptives Plot (SE)**



#### Descriptives Plot (95% IC)



**ELECTRODERMAL RESPONSE MAGNITUDE (ERM)**

**Results**

**Repeated Measures ANOVA**

| **Within Subjects Effects**  |
| --- |
|  | **Sphericity Correction**  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| Time  |  | Greenhouse-Geisser  |  | 21.675  | ᵃ  | 4.388  | ᵃ  | 4.939  | ᵃ  | 6.518  | ᵃ  | < .001  | ᵃ  |
| Time ✻ GroupF  |  | Greenhouse-Geisser  |  | 12.767  | ᵃ  | 8.777  | ᵃ  | 1.455  | ᵃ  | 1.920  | ᵃ  | 0.054  | ᵃ  |
| Residual  |  | Greenhouse-Geisser  |  | 119.719  |  | 157.983  |  | 0.758  |  |  |  |    |  |
|  |
| *Note.*  Type III Sum of Squares  |
| ᵃ Mauchly's test of sphericity indicates that the assumption of sphericity is violated (p < .05).  |

| **Between Subjects Effects**  |
| --- |
|  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| GroupF  |  | 17.110  |  | 2  |  | 8.555  |  | 3.202  |  | 0.053  |  |
| Residual  |  | 96.200  |  | 36  |  | 2.672  |  |  |  |    |  |
|  |
| *Note.*  Type III Sum of Squares  |

**Assumption Checks**

| **Test of Sphericity**  |
| --- |
|  | **Mauchly's W**  | **p**  | **Greenhouse-Geisser ε**  | **Huynh-Feldt ε**  |
| Relative SCR  |  | 6.355e -4  |  | < .001  |  | 0.399  |  | 0.461  |  |
|  |

**Post Hoc Tests**

| **Post Hoc Comparisons - GroupF**  |
| --- |
|  |  | **Mean Difference**  | **SE**  | **t**  | **p holm**  |
| Control  |  | PD-PA  |  | -0.124  |  | 0.180  |  | -0.687  |  | 0.496  |  |
|    |  | PD+PA  |  | -0.518  |  | 0.205  |  | -2.530  |  | 0.048  |  |
| PD-PA  |  | PD+PA  |  | -0.394  |  | 0.233  |  | -1.696  |  | 0.197  |  |
|  |

**Descriptives Plot (SE)**



**Descriptives Plot (95% CI)**



**SKIN CONDUCTANCE LEVEL - SCL**

**Repeated Measures ANOVA**

| **Within Subjects Effects**  |
| --- |
|  | **Sphericity Correction**  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| Time  |  | Greenhouse-Geisser  |  | 0.968  | ᵃ  | 1.830  | ᵃ  | 0.529  | ᵃ  | 21.532  | ᵃ  | < .001  | ᵃ  |
| Time ✻ GroupF  |  | Greenhouse-Geisser  |  | 0.336  | ᵃ  | 3.660  | ᵃ  | 0.092  | ᵃ  | 3.737  | ᵃ  | 0.010  | ᵃ  |
| Residual  |  | Greenhouse-Geisser  |  | 1.618  |  | 65.877  |  | 0.025  |  |  |  |    |  |
|  |
| *Note.*  Type III Sum of Squares  |
| ᵃ Mauchly's test of sphericity indicates that the assumption of sphericity is violated (p < .05).  |

| **Between Subjects Effects**  |
| --- |
|  | **Sum of Squares**  | **df**  | **Mean Square**  | **F**  | **p**  |
| GroupF  |  | 1.172  |  | 2  |  | 0.586  |  | 5.550  |  | 0.008  |  |
| Residual  |  | 3.801  |  | 36  |  | 0.106  |  |  |  |    |  |
|  |
| *Note.*  Type III Sum of Squares  |

**Assumption Checks**

| **Test of Sphericity**  |
| --- |
|  | **Mauchly's W**  | **p**  | **Greenhouse-Geisser ε**  | **Huynh-Feldt ε**  |
| Time  |  | 3.780e -12  |  | < .001  |  | 0.166  |  | 0.175  |  |
|  |

**Descriptives Plot (95% CI)**

