Hypothesis Testing for NSF Office Stress Project - Reduced Sensor Set

Below are the test results for each of the Conditions that had $n \ge 7$ subjects. Statistical testing can have three different possible outcomes: the data is already normal (t-test), the logarithm of the data is normal (t-test with log data), or the data is NOT normal (Wilcoxon test).

For notation, let:

```
WB-RB = Writing Baseline - Resting Baseline
SC-RB = Stress Condition - Resting Baseline
SC-WB = Stress Condition - Writing Baseline
DT-RB = Dual Task - Resting Baseline
DT-WB = Dual Task - Writing Baseline
DT-SC = Dual Task - Stress Condition
P-RB = Presentation - Resting Baseline
P-WB = Presentation - Writing Baseline
P-SC = Presentation - Stress Condition
P-DT = Presentation - Dual Task
```

For each of the graphs, let:

```
* = 0.01 

<math>** = 0.001 

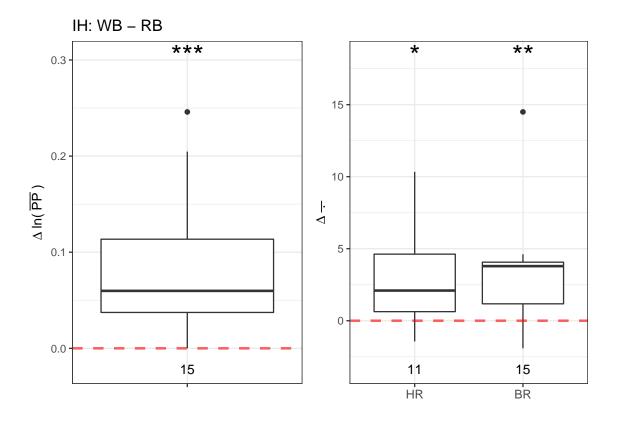
<math>*** = p <= 0.001

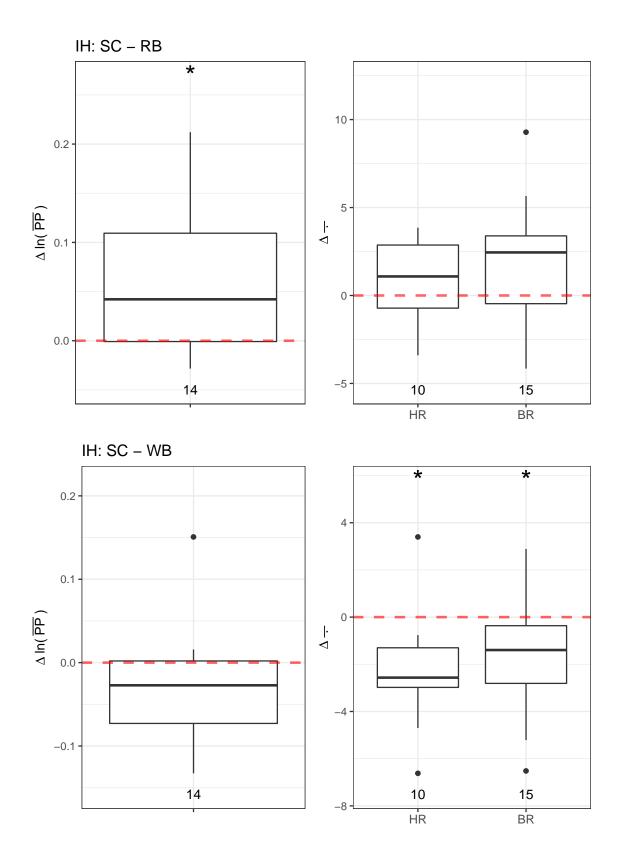
? = Did not run statistical test (n < 7)
```

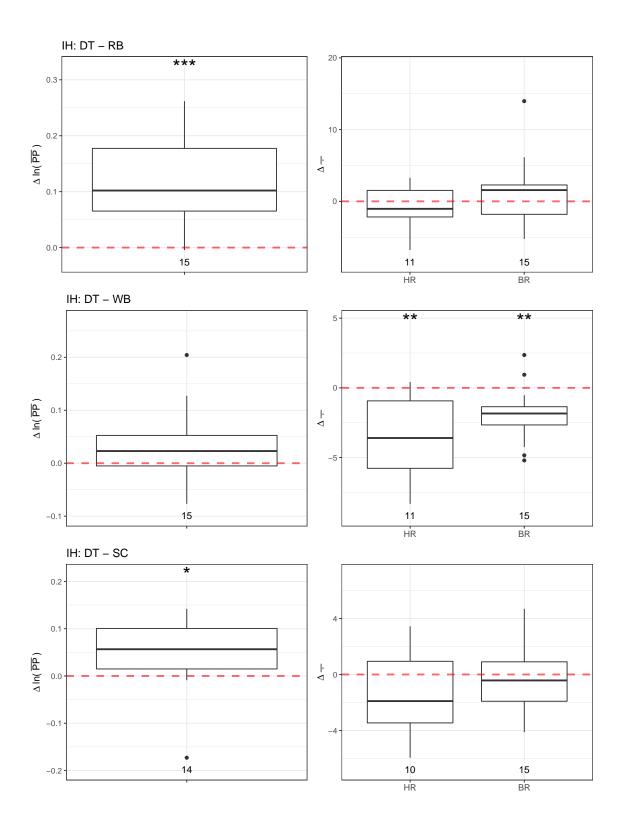
Differences in **Reduced Sensor Set**:

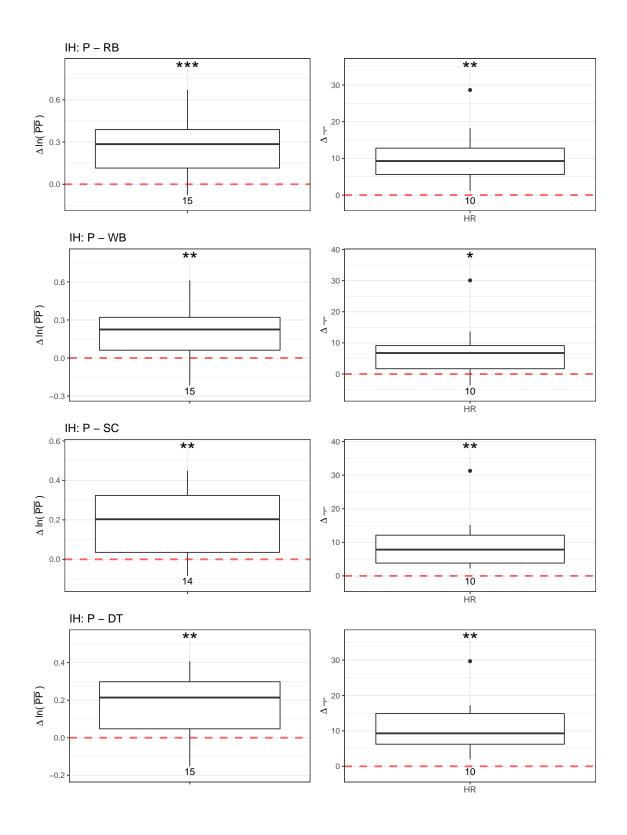
- Signals for D.EDA, N.EDA, D.HR, and N.HR and removed completely.
- Breathing Rate (BR) measurements for the Presentation session are removed completely.
- Easier on the eyes.

Intermittent-High (IH)

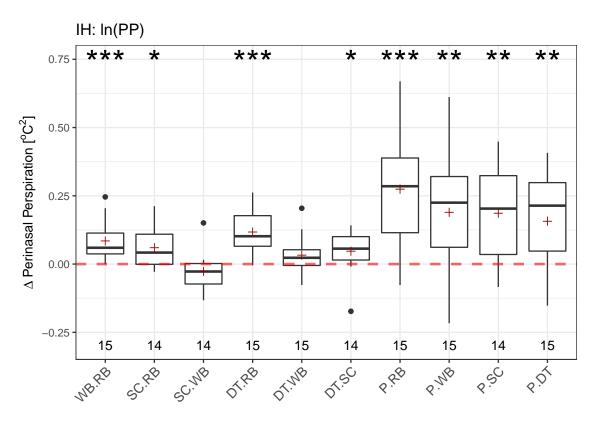






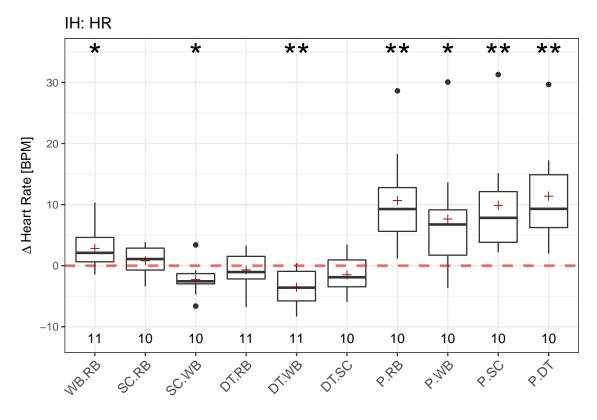


Sensor Channel across Session



```
## In the following tests, we applied ln(PP).
##
## Writing Baseline - Resting Baseline
## t-test p = 5e-04 < 0.001 ***
## Stress Condition - Resting Baseline
## t-test p = 0.0123 < 0.05 *
## StressCondition - Writing Baseline
## t-test p = 0.1695 > 0.05
##
## Dual Task - Resting Baseline
## t-test p = 0 < 0.001 ***
##
## Dual Task - Writing Baseline
## t-test p = 0.1077 > 0.05
##
## Dual Task - Stress Condition
## t-test p = 0.0438 < 0.05 *
## Presentation - Resting Baseline
## t-test p = 2e-04 < 0.001 ***
##
```

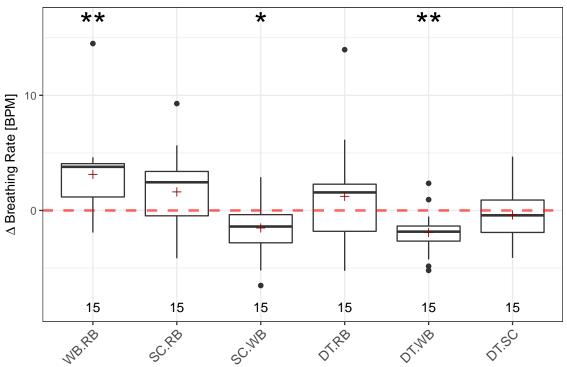
```
## Presentation - Writing Baseline
## t-test p = 0.0036 < 0.01 **
##
## Presentation - Stress Condition
## t-test p = 0.0016 < 0.01 **
##
## Presentation - Dual Task
## t-test p = 0.0049 < 0.01 **</pre>
```



```
## Writing Baseline - Resting Baseline
## t-test p = 0.0188 < 0.05 *
##
## Stress Condition - Resting Baseline
## t-test p = 0.3553 > 0.05
##
## StressCondition - Writing Baseline
## t-test p = 0.0243 < 0.05 *
## Dual Task - Resting Baseline
## t-test p = 0.4335 > 0.05
## Dual Task - Writing Baseline
## t-test p = 0.0036 < 0.01 **
##
## Dual Task - Stress Condition
## t-test p = 0.1614 > 0.05
##
## Presentation - Resting Baseline
## t-test p = 0.0024 < 0.01 **
## Presentation - Writing Baseline
## t-test p = 0.0289 < 0.05 *
## Presentation - Stress Condition
```

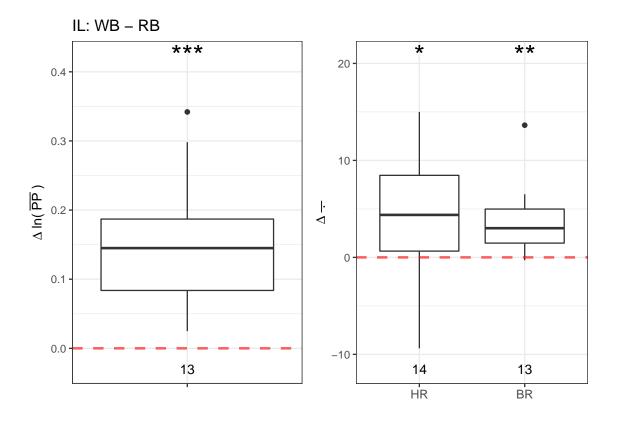
```
## t-test p = 0.0063 < 0.01 **
##
## Presentation - Dual Task
## t-test p = 0.0015 < 0.01 **</pre>
```

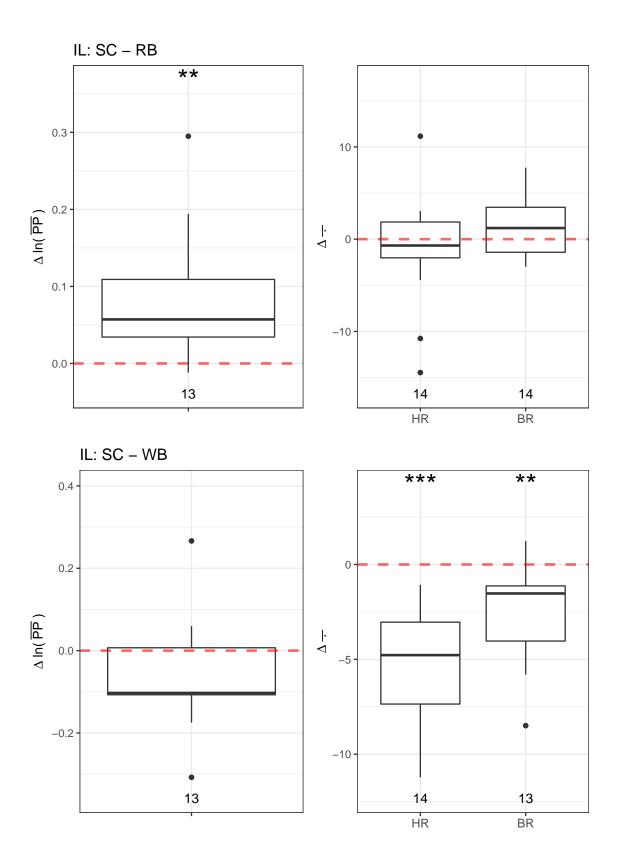


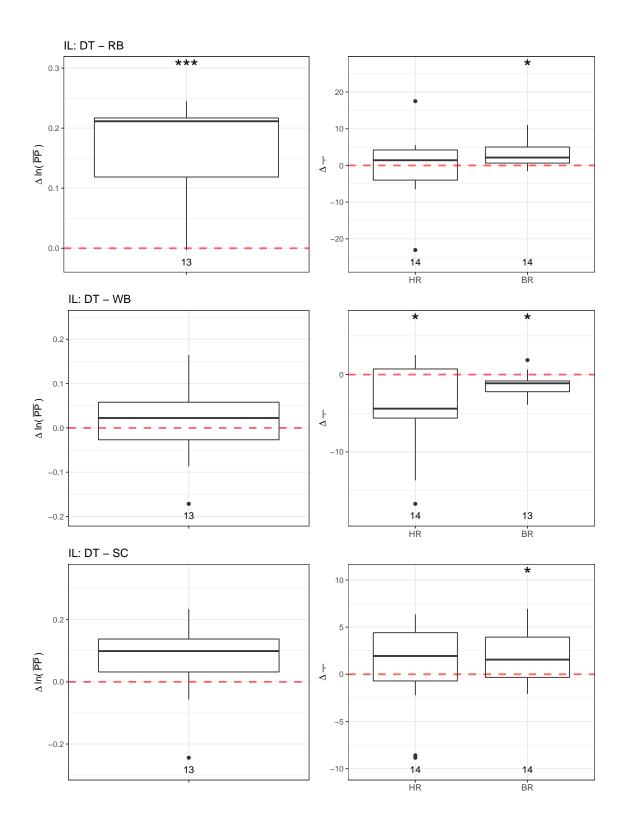


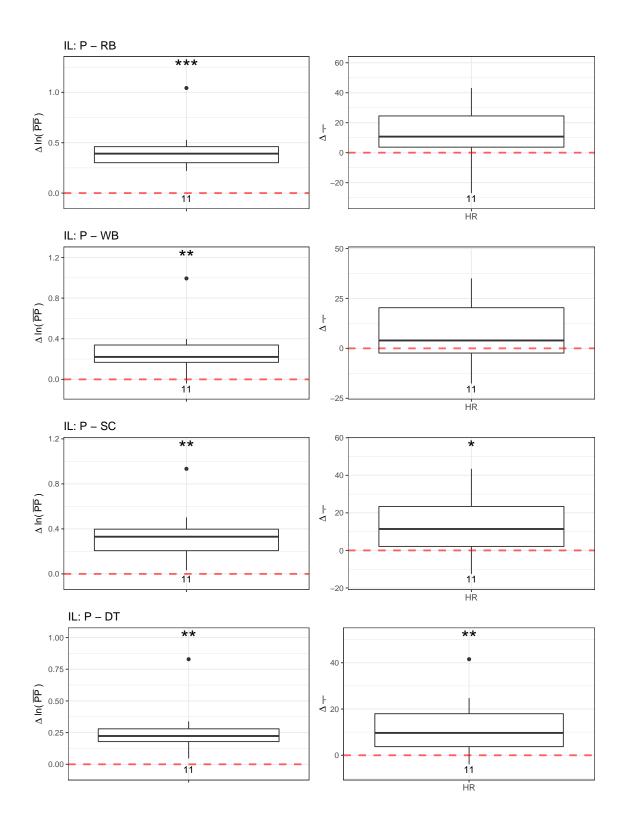
```
## Writing Baseline - Resting Baseline
## t-test p = 0.0075 < 0.01 **
##
## Stress Condition - Resting Baseline
## t-test p = 0.1189 > 0.05
##
## StressCondition - Writing Baseline
## t-test p = 0.0318 < 0.05 *
##
## Dual Task - Resting Baseline
## t-test p = 0.3323 > 0.05
##
## Dual Task - Writing Baseline
## t-test p = 0.0023 < 0.01 **
##
## Dual Task - Stress Condition
## t-test p = 0.5106 > 0.05
```

Intermittent-Low (IL)

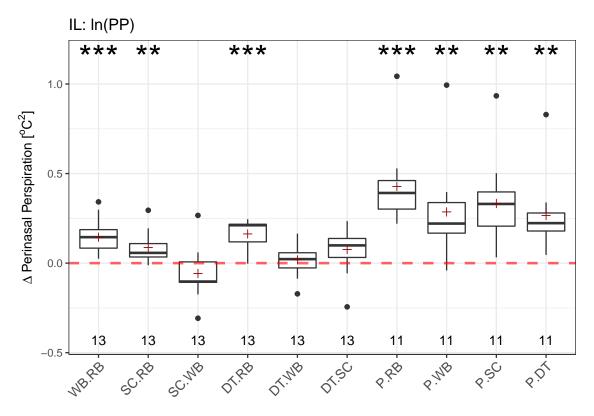






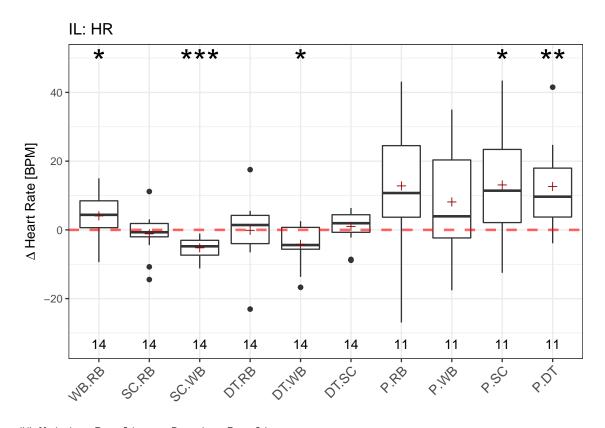


Sensor Channel across Session



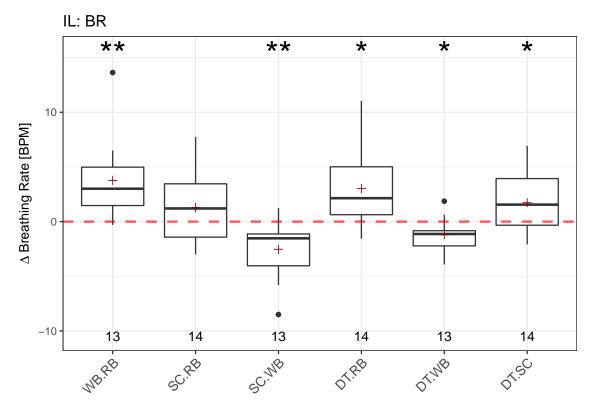
```
## Writing Baseline - Resting Baseline
## t-test p = 2e-04 < 0.001 ***
## Stress Condition - Resting Baseline
## t-test p = 0.0048 < 0.01 **
## StressCondition - Writing Baseline
## t-test p = 0.1501 > 0.05
##
## Dual Task - Resting Baseline
## t-test p = 0 < 0.001 ***
## Dual Task - Writing Baseline
## t-test p = 0.4898 > 0.05
##
## Dual Task - Stress Condition
## t-test p = 0.0502 > 0.05
##
## Presentation - Resting Baseline
## t-test p = 1e-04 < 0.001 ***
##
## Presentation - Writing Baseline
## t-test p = 0.0054 < 0.01 **
```

```
##
## Presentation - Stress Condition
## t-test p = 0.0012 < 0.01 **
##
## Presentation - Dual Task
## t-test p = 0.0016 < 0.01 **</pre>
```



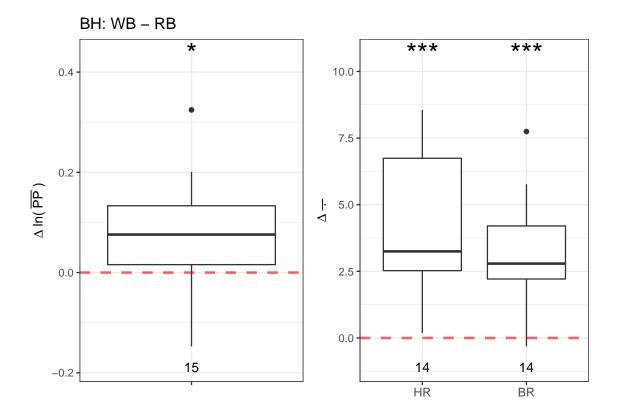
```
## Writing Baseline - Resting Baseline
## t-test p = 0.0318 < 0.05 *
##
## Stress Condition - Resting Baseline
## t-test p = 0.4931 > 0.05
##
## StressCondition - Writing Baseline
## t-test p = 0 < 0.001 ***
## Dual Task - Resting Baseline
## t-test p = 0.9564 > 0.05
## Dual Task - Writing Baseline
## t-test p = 0.0154 < 0.05 *
##
## Dual Task - Stress Condition
## t-test p = 0.4432 > 0.05
##
## Presentation - Resting Baseline
## t-test p = 0.0552 > 0.05
## Presentation - Writing Baseline
## t-test p = 0.1202 > 0.05
## Presentation - Stress Condition
```

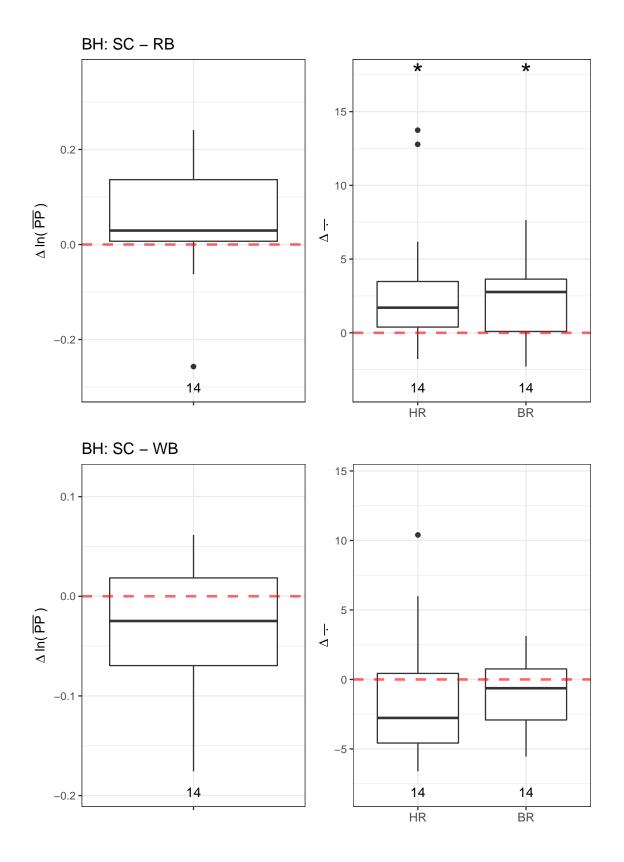
```
## t-test p = 0.0209 < 0.05 *
##
## Presentation - Dual Task
## t-test p = 0.0094 < 0.01 **</pre>
```

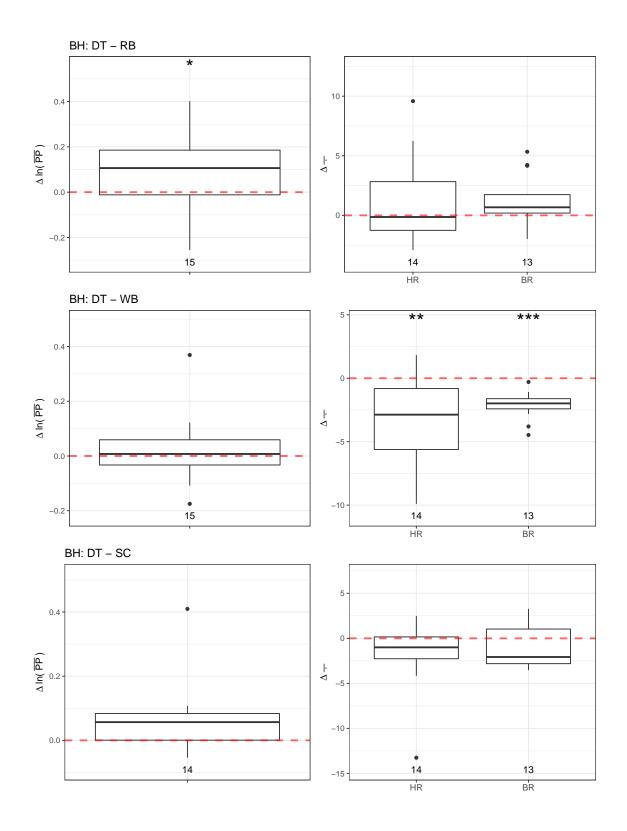


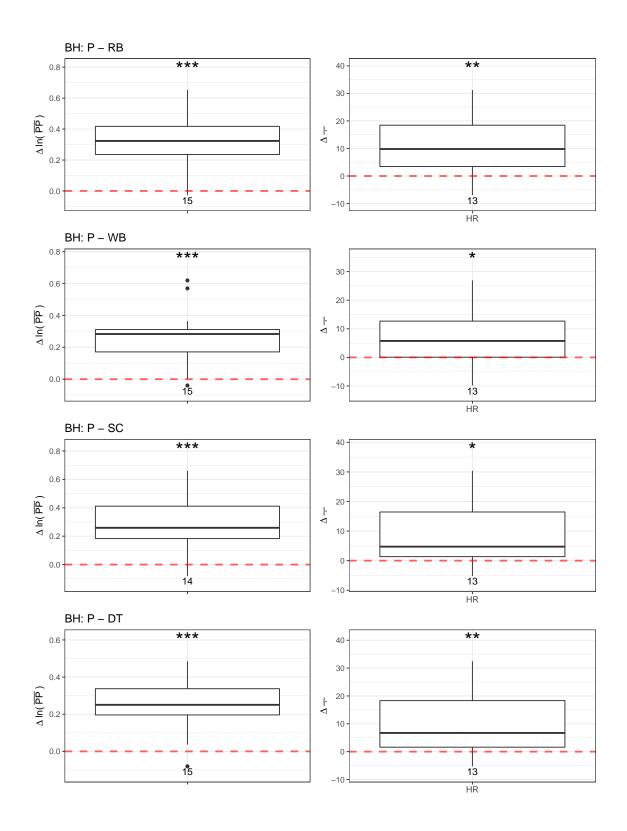
```
## Writing Baseline - Resting Baseline
## t-test p = 0.0029 < 0.01 **
##
## Stress Condition - Resting Baseline
## t-test p = 0.1716 > 0.05
##
## StressCondition - Writing Baseline
## t-test p = 0.0057 < 0.01 **
##
## Dual Task - Resting Baseline
## t-test p = 0.011 < 0.05 *
##
## Dual Task - Writing Baseline
## t-test p = 0.0141 < 0.05 *
##
## Dual Task - Stress Condition
## t-test p = 0.0397 < 0.05 *</pre>
```

Batch-High (BH)

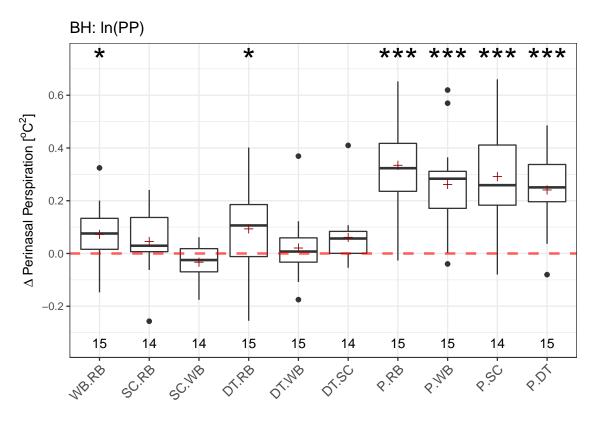






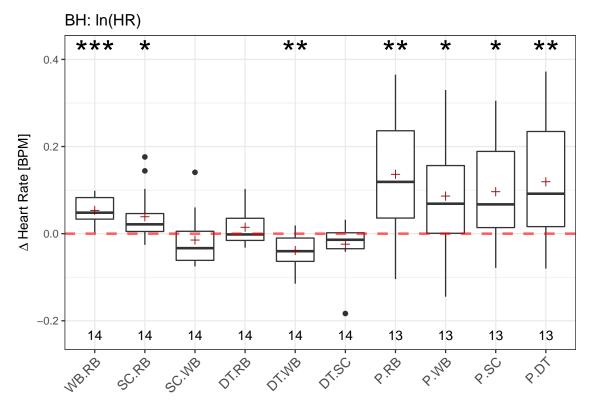


Sensor Channel across Session



```
## Writing Baseline - Resting Baseline
## t-test p = 0.0219 < 0.05 *
## Stress Condition - Resting Baseline
## t-test p = 0.1778 > 0.05
## StressCondition - Writing Baseline
## t-test p = 0.0974 > 0.05
##
## Dual Task - Resting Baseline
## t-test p = 0.0363 < 0.05 *
## Dual Task - Writing Baseline
## t-test p = 0.526 > 0.05
##
## Dual Task - Stress Condition
## t-test p = 0.063 > 0.05
##
## Presentation - Resting Baseline
## t-test p = 0 < 0.001 ***
##
## Presentation - Writing Baseline
## t-test p = 1e-04 < 0.001 ***
```

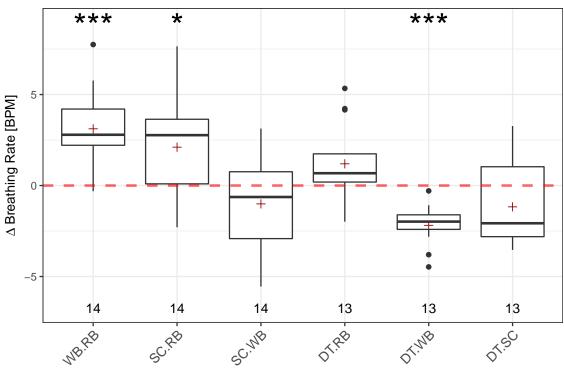
```
##
## Presentation - Stress Condition
## t-test p = 1e-04 < 0.001 ***
##
## Presentation - Dual Task
## t-test p = 0 < 0.001 ***</pre>
```



```
## Writing Baseline - Resting Baseline
## Transformed t-test p = 0 < 0.001 ***
## Stress Condition - Resting Baseline
## Transformed t-test p = 0.0327 < 0.05 *
##
## StressCondition - Writing Baseline
## Transformed t-test p = 0.3941 > 0.05
## Dual Task - Resting Baseline
## Transformed t-test p = 0.2172 > 0.05
## Dual Task - Writing Baseline
## Transformed t-test p = 0.0025 < 0.01 **
##
## Dual Task - Stress Condition
## Transformed t-test p = 0.0971 > 0.05
##
## Presentation - Resting Baseline
## Transformed t-test p = 0.0048 < 0.01 **
## Presentation - Writing Baseline
## Transformed t-test p = 0.0411 < 0.05 *
## Presentation - Stress Condition
```

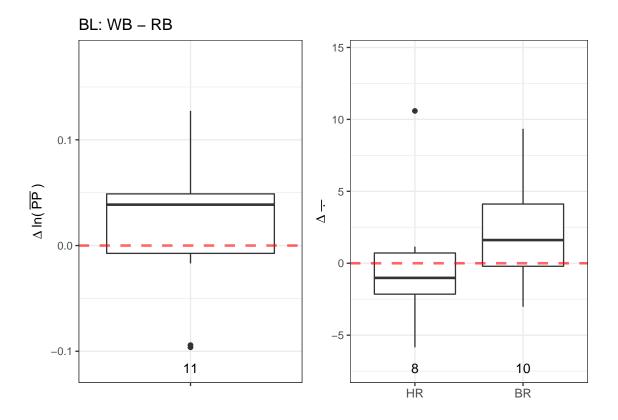
```
## Transformed t-test p = 0.0162 < 0.05 * ## ## Presentation - Dual Task ## Transformed t-test p = 0.0095 < 0.01 **
```

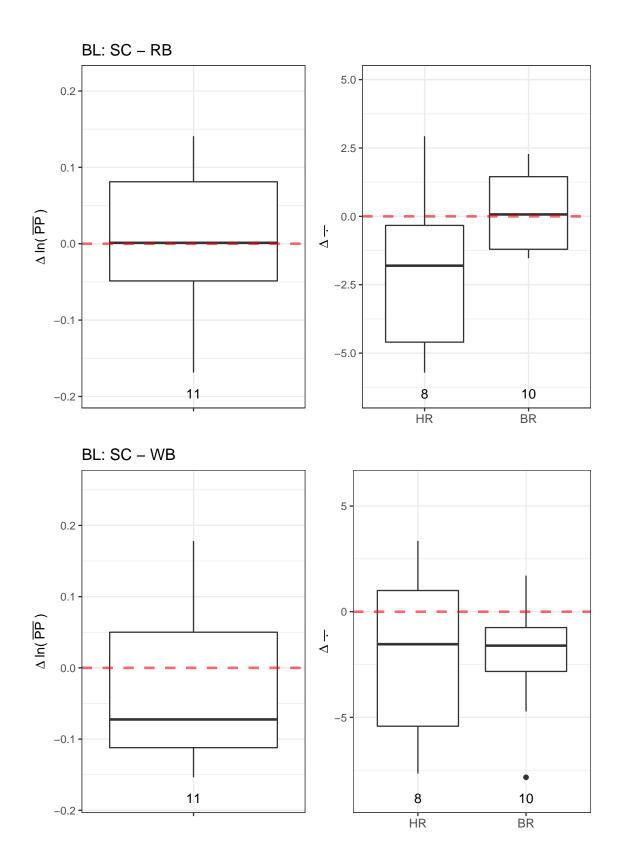


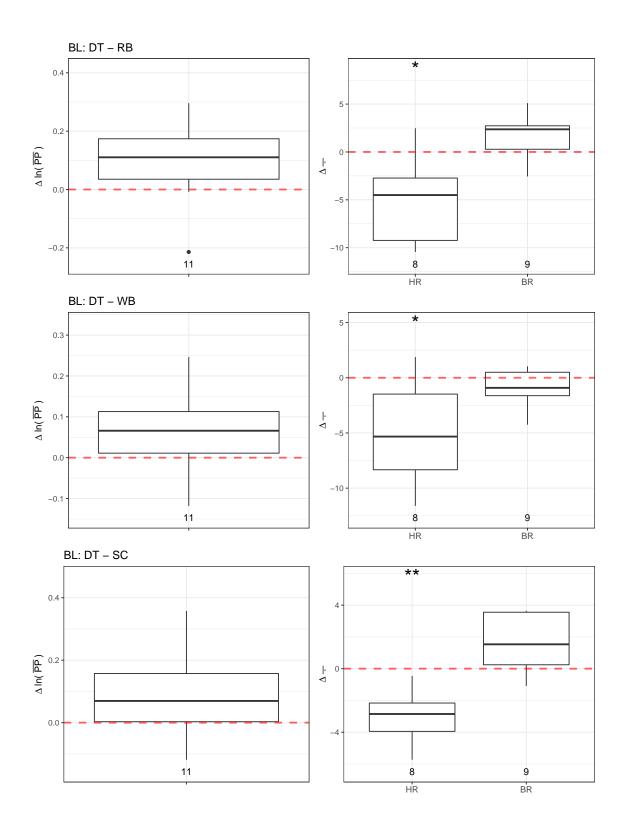


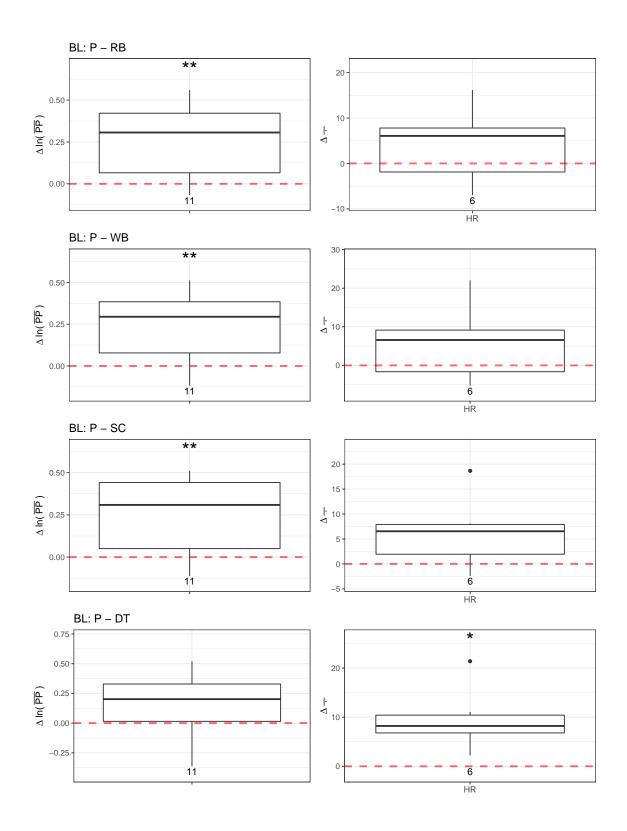
```
## Writing Baseline - Resting Baseline
## t-test p = 1e-04 < 0.001 ***
##
## Stress Condition - Resting Baseline
## t-test p = 0.0167 < 0.05 *
##
## StressCondition - Writing Baseline
## t-test p = 0.1543 > 0.05
##
## Dual Task - Resting Baseline
## t-test p = 0.0745 > 0.05
##
## Dual Task - Writing Baseline
## t-test p = 0 < 0.001 ***
##
## Dual Task - Stress Condition
## t-test p = 0.1009 > 0.05
```

Batch-Low (BL)

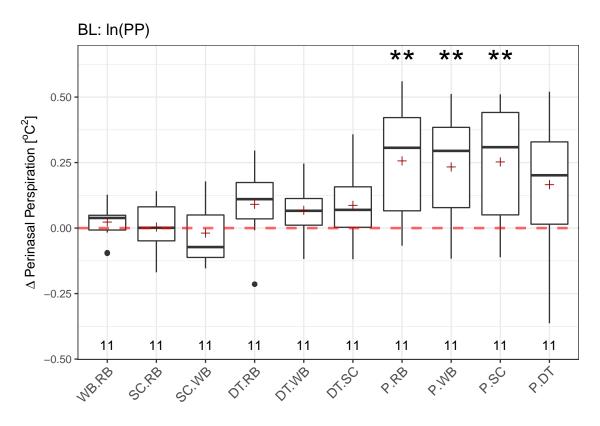






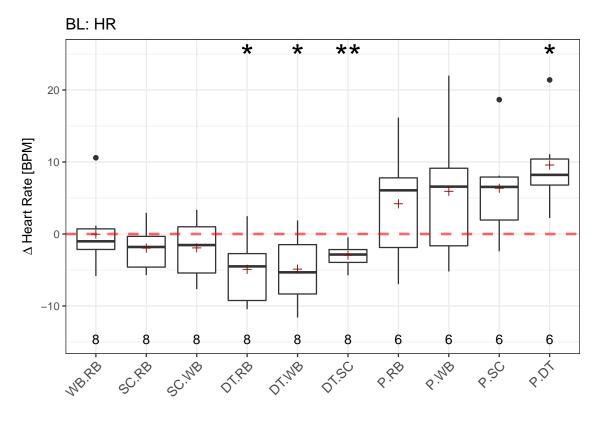


Sensor Channel across Session



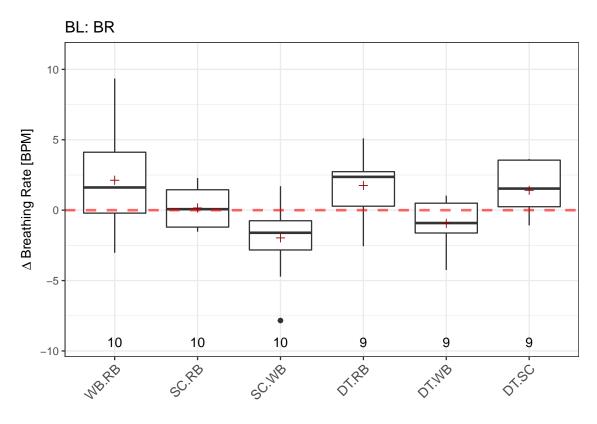
```
## Writing Baseline - Resting Baseline
## t-test p = 0.3115 > 0.05
## Stress Condition - Resting Baseline
## t-test p = 0.8923 > 0.05
## StressCondition - Writing Baseline
## t-test p = 0.5912 > 0.05
##
## Dual Task - Resting Baseline
## t-test p = 0.0525 > 0.05
## Dual Task - Writing Baseline
## t-test p = 0.068 > 0.05
##
## Dual Task - Stress Condition
## t-test p = 0.0607 > 0.05
##
## Presentation - Resting Baseline
## t-test p = 0.0026 < 0.01 **
##
## Presentation - Writing Baseline
## t-test p = 0.003 < 0.01 **
```

```
##
## Presentation - Stress Condition
## t-test p = 0.0039 < 0.01 **
##
## Presentation - Dual Task
## t-test p = 0.0575 > 0.05
```



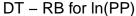
```
## Writing Baseline - Resting Baseline
## t-test p = 0.9869 > 0.05
##
## Stress Condition - Resting Baseline
## t-test p = 0.1034 > 0.05
##
## StressCondition - Writing Baseline
## t-test p = 0.217 > 0.05
## Dual Task - Resting Baseline
## t-test p = 0.02 < 0.05 *
## Dual Task - Writing Baseline
## t-test p = 0.023 < 0.05 *
##
## Dual Task - Stress Condition
## t-test p = 0.0024 < 0.01 **
##
## Presentation - Resting Baseline
## t-test p = 0.2801 > 0.05
## Presentation - Writing Baseline
## t-test p = 0.2075 > 0.05
## Presentation - Stress Condition
```

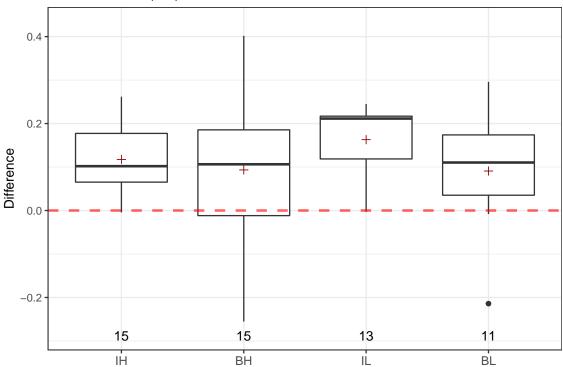
```
## t-test p = 0.0855 > 0.05
##
## Presentation - Dual Task
## t-test p = 0.0152 < 0.05 *</pre>
```



```
## Writing Baseline - Resting Baseline
## t-test p = 0.0916 > 0.05
##
## Stress Condition - Resting Baseline
## t-test p = 0.7428 > 0.05
##
## StressCondition - Writing Baseline
## t-test p = 0.0548 > 0.05
##
## Dual Task - Resting Baseline
## t-test p = 0.0695 > 0.05
## Dual Task - Writing Baseline
## t-test p = 0.1269 > 0.05
##
## Dual Task - Stress Condition
## t-test p = 0.0515 > 0.05
```

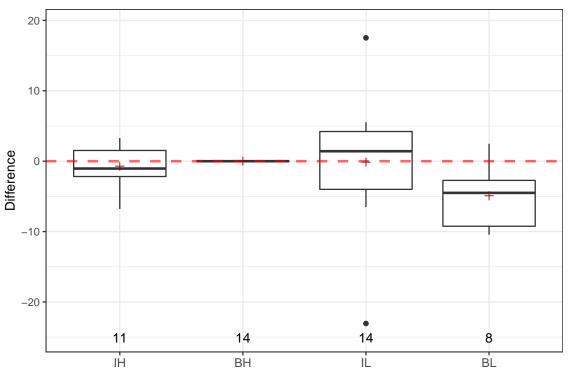
Across Sessions





```
##
               Df Sum Sq Mean Sq F value Pr(>F)
## Condition
               3 0.0434 0.01445
                                   1.047
## Residuals
               50 0.6903 0.01381
##
##
##
##
       Tukey multiple comparisons of means
##
       95% family-wise confidence level
## Fit: aov(formula = formula(paste(diff, "~ Condition")), data = anova_df)
##
## $Condition
##
                 diff
                              lwr
                                        upr
                                                p adj
## BL-BH -0.002520434 -0.12647497 0.1214341 0.9999425
## IH-BH 0.024093888 -0.08992770 0.1381155 0.9429316
## IL-BH 0.069611785 -0.04871401 0.1879376 0.4084248
## IH-BL 0.026614322 -0.09734021 0.1505689 0.9403670
## IL-BL 0.072132219 -0.05579275 0.2000572 0.4460204
## IL-IH 0.045517897 -0.07280789 0.1638437 0.7372276
```

DT - RB for HR

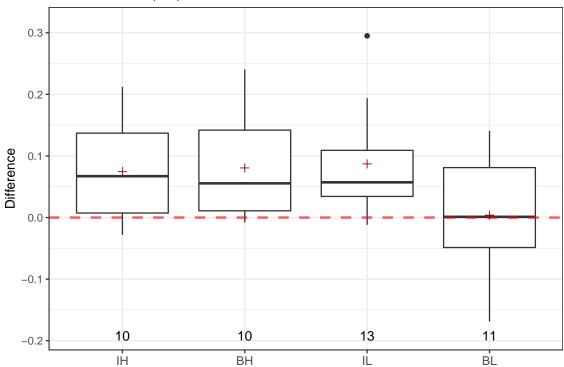


```
##
               Df Sum Sq Mean Sq F value Pr(>F)
               3 148.2
## Condition
                            49.4
                                   1.669 0.188
## Residuals
               43 1272.7
                            29.6
##
##
##
       Tukey multiple comparisons of means
##
##
       95% family-wise confidence level
## Fit: aov(formula = formula(paste(diff, "~ Condition")), data = anova_df)
##
## $Condition
##
               diff
                           lwr
                                     upr
                                             p adj
## BL-BH -4.9257293 -11.369363
                               1.517905 0.1885296
                    -6.576456
                               5.139242 0.9876655
## IH-BH -0.7186071
## IL-BH -0.1479398 -5.643089 5.347210 0.9998642
## IH-BL 4.2071221 -2.548479 10.962723 0.3547230
## IL-BL 4.7777895 -1.665844 11.221423 0.2107991
## IL-IH 0.5706674 -5.287182 6.428516 0.9937245
```

DT – RB for BR 15 10 -5 15 13 14 9 IH BH IL BL

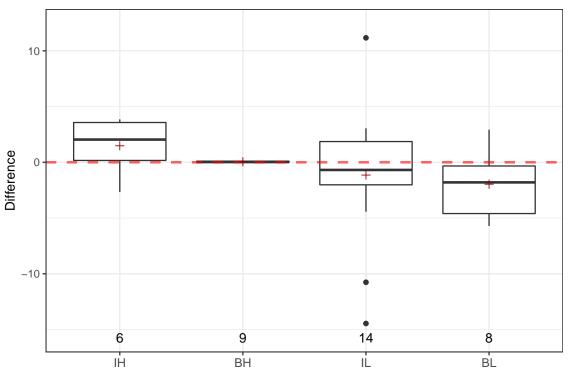
```
##
               Df Sum Sq Mean Sq F value Pr(>F)
## Condition
                3
                    30.6
                           10.19
                                   0.785 0.508
## Residuals
               47 610.3
                           12.98
##
## ---
##
##
       Tukey multiple comparisons of means
##
       95% family-wise confidence level
## Fit: aov(formula = formula(paste(diff, "~ Condition")), data = anova_df)
##
## $Condition
##
                diff
                           lwr
                                    upr
                                            p adj
## BL-BH 0.56288206 -3.598925 4.724689 0.9837998
## IH-BH 0.03130078 -3.605548 3.668149 0.9999956
## IL-BH 1.82566162 -1.871000 5.522323 0.5579624
## IH-BL -0.53158128 -4.578293 3.515130 0.9851142
## IL-BL 1.26277956 -2.837771 5.363330 0.8446226
## IL-IH 1.79436084 -1.772226 5.360948 0.5426749
```

SC - RB for In(PP)



```
## [1] "Removed 12 subjects who had Stroop scores less than 30."
##
##
##
                 Df Sum Sq Mean Sq F value Pr(>F)
## Condition
                3 0.0502 0.016750
                                    2.117 0.113
  Residuals
               40 0.3165 0.007913
##
##
##
       Tukey multiple comparisons of means
##
       95% family-wise confidence level
##
## Fit: aov(formula = formula(paste(diff, "~ Condition")), data = anova_df)
##
## $Condition
##
                 diff
                              lwr
                                         upr
## BL-BH -0.076626057 -0.18080660 0.02755449 0.2157675
## IH-BH -0.006078721 -0.11271091 0.10055347 0.9987070
## IL-BH 0.006491587 -0.09380024 0.10678342 0.9981124
## IH-BL 0.070547336 -0.03363321 0.17472788 0.2814130
## IL-BL 0.083117644 -0.01456354 0.18079883 0.1196966
## IL-IH 0.012570308 -0.08772152 0.11286214 0.9867405
```

SC - RB for HR

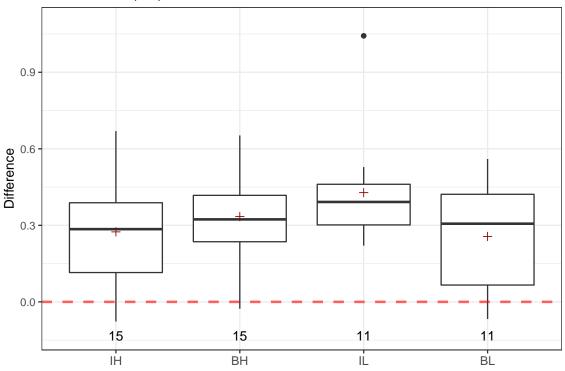


```
## [1] "Removed 12 subjects who had Stroop scores less than 30."
##
##
##
                 Df Sum Sq Mean Sq F value Pr(>F)
                           16.27
                                   0.932 0.436
## Condition
                3
                    48.8
## Residuals
               33 576.0
                           17.45
##
##
##
      Tukey multiple comparisons of means
##
       95% family-wise confidence level
##
## Fit: aov(formula = formula(paste(diff, "~ Condition")), data = anova_df)
##
## $Condition
##
               diff
                          lwr
                                   upr
## BL-BH -2.0133160 -7.504415 3.477783 0.7550819
## IH-BH 1.4303974 -4.525536 7.386331 0.9149259
## IL-BH -1.1960968 -6.024235 3.632042 0.9076004
## IH-BL 3.4437134 -2.659302 9.546729 0.4338003
## IL-BL 0.8172192 -4.191231 5.825670 0.9708163
## IL-IH -2.6264942 -8.140617 2.887629 0.5765866
```

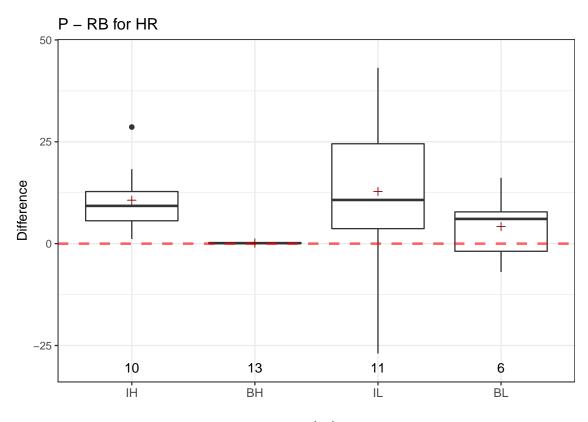
SC - RB for BR

```
## [1] "Removed 12 subjects who had Stroop scores less than 30."
##
##
##
                 Df Sum Sq Mean Sq F value Pr(>F)
## Condition
                           7.149
                                   0.704 0.555
                3
                    21.4
## Residuals
               38 385.8 10.153
##
##
##
       Tukey multiple comparisons of means
##
       95% family-wise confidence level
##
## Fit: aov(formula = formula(paste(diff, "~ Condition")), data = anova_df)
##
## $Condition
##
               diff
                          lwr
                                   upr
## BL-BH -1.9538117 -5.886873 1.979250 0.5472353
## IH-BH -0.2871680 -4.322404 3.748068 0.9974784
## IL-BH -0.8231676 -4.480411 2.834076 0.9299641
## IH-BL 1.6666437 -2.266418 5.599705 0.6684465
## IL-BL 1.1306441 -2.413545 4.674833 0.8267114
## IL-IH -0.5359996 -4.193243 3.121244 0.9789960
```

P - RB for In(PP)



```
##
               Df Sum Sq Mean Sq F value Pr(>F)
## Condition
                3 0.2077 0.06923
                                   1.682 0.183
## Residuals
               48 1.9759 0.04117
##
## ---
##
##
       Tukey multiple comparisons of means
##
       95% family-wise confidence level
## Fit: aov(formula = formula(paste(diff, "~ Condition")), data = anova_df)
##
## $Condition
##
                diff
                             lwr
                                       upr
                                               p adj
## BL-BH -0.07795670 -0.29230233 0.1363889 0.7681789
## IH-BH -0.05996856 -0.25713786 0.1372007 0.8496836
## IL-BH 0.09389197 -0.12045366 0.3082376 0.6510356
## IH-BL 0.01798814 -0.19635749 0.2323338 0.9960160
## IL-BL 0.17184867 -0.05839547 0.4020928 0.2073596
## IL-IH 0.15386053 -0.06048510 0.3682062 0.2373514
```



```
##
              Df Sum Sq Mean Sq F value Pr(>F)
## Condition
               3
                   1163
                          387.7
                                  2.922 0.0471 *
## Residuals
               36
                   4777
                          132.7
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.05 '.' 0.1 ' ' 1
##
## ---
##
##
      Tukey multiple comparisons of means
       95% family-wise confidence level
##
## Fit: aov(formula = formula(paste(diff, "~ Condition")), data = anova_df)
##
## $Condition
##
             diff
                           lwr
                                     upr
                                            p adj
## BL-BH 4.061217 -11.25116681 19.37360 0.8907643
## IH-BH 10.527892 -2.52195840 23.57774 0.1503088
## IL-BH 12.663910 -0.04624692 25.37407 0.0511343
## IH-BL 6.466676 -9.55462121 22.48797 0.6995544
## IL-BL 8.602693 -7.14314547 24.34853 0.4647807
## IL-IH 2.136017 -11.41982783 15.69186 0.9739392
```

Summary

BH	Condition	Difference	Measure	р	Test	n	Significance
BH	BH	WB - RB		_	t-test	15	*
BH	ВН	WB - RB	HR	0.0000130	Transformed t-test	14	***
BH	ВН	WB - RB	BR	0.0001138	t-test	14	***
BH	BH	SC - RB	PP	0.1778303	t-test	14	
BH SC - WB PP 0.0973689 t-test 14 BH SC - WB BR 0.3940901 Transformed t-test 14 BH SC - WB BR 0.1543122 t-test 14 BH DT - RB PP 0.0363198 t-test 15 * BH DT - RB PP 0.0363198 t-test 14 BH DT - RB BR 0.2171923 Transformed t-test 14 BH DT - RB BR 0.0744732 t-test 13 BH DT - WB PP 0.5259981 t-test 15 BH DT - WB PP 0.5259981 t-test 15 BH DT - WB BR 0.0000095 t-test 14 *** BH DT - SC PP 0.0629673 t-test 14 BH DT - SC BR 0.1008707 t-test 14 BH DT - SC BR 0.1008707 t-test 13 BH P - RB HR 0.0047967 Transformed t-test 14 BH P - RB HR 0.0047967 Transformed t-test 15 *** BH P - WB PP 0.00000551 t-test 15 *** BH P - WB PP 0.00000551 t-test 15 *** BH P - SC PP 0.000026 t-test 13 ** BH P - SC PP 0.0000261 t-test 13 ** BH P - DT PP 0.0000051 t-test 13 ** BH P - DT PP 0.0000151 t-test 14 *** BH P - SC PP 0.0000261 t-test 15 *** BH P - SC PP 0.0000551 t-test 11 *** BH P - SC PP 0.0000624 t-test 13 ** BH P - SC PP 0.0000624 t-test 14 *** BH P - SC PP 0.0000624 t-test 14 *** BH P - SC PP 0.0000625 t-test 14 *** BH P - DT PP 0.0000121 t-test 13 ** BH P - DT PP 0.0000121 t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 BL WB - RB PP 0.3115380 t-test 11 BL SC - RB HR 0.0915679 t-test 10 BL SC - RB HR 0.034335 t-test 11 BL SC - RB HR 0.034335 t-test 11 BL SC - WB BR 0.7428199 t-test 10 BL SC - WB BR 0.7428199 t-test 10 BL SC - WB BR 0.052537 t-test 11 BL SC - WB BR 0.052537 t-test 11 BL DT - RB BR 0.0694710 t-test 9 BL DT - RB BR 0.0694710 t-test 9 BL DT - RB BR 0.0694710 t-test 9 BL DT - WB BR 0.0609309 t-test 8 BL DT - WB BR 0.0609309 t-test 9 BL DT - SC BR 0.0515357 t-test 9 BL DT	BH	SC - RB	HR	0.0327106	Transformed t-test	14	*
BH	ВН	SC - RB	BR	0.0167176	t-test	14	*
BH	BH	SC - WB	PP	0.0973689	t-test	14	
BH	ВН	SC - WB	HR	0.3940901	Transformed t-test	14	
BH	BH	SC - WB	BR	0.1543122	t-test	14	
BH DT - RB BR 0.0744732 t-test 13 BH DT - WB PP 0.5259981 t-test 15 BH DT - WB HR 0.0020620 Transformed t-test 14 *** BH DT - WB BR 0.0000095 t-test 13 **** BH DT - SC PP 0.0629673 t-test 14 BH DT - SC BR 0.00971471 Transformed t-test 14 BH DT - SC BR 0.1008707 t-test 13 *** BH P - RB PP 0.000026 t-test 15 **** BH P - RB BP 0.000051 t-test 15 **** BH P - RB BP 0.0000624 t-test 15 **** BH P - SC PP 0.0000624 t-test 13 ** BH P - SC HR 0.0161774 Transformed t-test 13 **	ВН	DT - RB	PP	0.0363198	t-test	15	*
BH DT - WB PP 0.5259981 t-test 15 BH DT - WB HR 0.0024620 Transformed t-test 14 *** BH DT - WB BR 0.0000095 t-test 13 **** BH DT - SC PP 0.0629673 t-test 14 BH DT - SC HR 0.0971471 Transformed t-test 14 BH DT - SC BR 0.1008707 t-test 14 BH DT - SC BR 0.1008707 t-test 13 *** BH P - RB PP 0.0000262 t-test 15 *** BH P - RB HR 0.0411070 Transformed t-test 13 *** BH P - WB HR 0.0411070 Transformed t-test 13 *** BH P - SC HR 0.0161774 Transformed t-test 13 *** BH P - DT HP 0.000012 t-test	BH	DT - RB	HR	0.2171923	Transformed t-test	14	
BH DT - WB HR 0.0024620 Transformed t-test 14 *** BH DT - WB BR 0.0000095 t-test 13 **** BH DT - SC PP 0.0629673 t-test 14 BH DT - SC HR 0.0971471 Transformed t-test 14 BH DT - SC BR 0.1008707 t-test 13 BH D - RB PP 0.000026 t-test 15 *** BH P - RB HR 0.0047967 Transformed t-test 13 ** BH P - RB HR 0.0411070 Transformed t-test 13 ** BH P - WB HR 0.0411070 Transformed t-test 13 ** BH P - SC PP 0.0000624 t-test 14 *** BH P - SC HR 0.0161774 Transformed t-test 13 ** BH P - DT PP 0.0000624 <	BH	DT - RB	BR	0.0744732	t-test	13	
BH	BH	DT - WB	PP	0.5259981	t-test	15	
BH DT - WB BR 0.0000095 t-test 13 *** BH DT - SC PP 0.0629673 t-test 14 BH DT - SC HR 0.0971471 Transformed t-test 14 BH DT - SC BR 0.1008707 t-test 13 BH P - RB PP 0.0000026 t-test 15 **** BH P - RB HR 0.0047967 Transformed t-test 13 *** BH P - RB HR 0.0041070 Transformed t-test 13 *** BH P - WB PP 0.000051 t-test 15 **** BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 *** BH P - DT PP 0.0000121 t-test 13 *** BL WB - RB PP 0.3115380 t-test	ВН		HR	0.0024620	Transformed t-test	14	**
BH DT - SC PP 0.0629673 t-test 14 BH DT - SC HR 0.0971471 Transformed t-test 14 BH DT - SC BR 0.1008707 t-test 13 BH P - RB PP 0.000000000000 t-test 15 *** BH P - RB HR 0.0047967 Transformed t-test 13 ** BH P - RB HR 0.0047967 Transformed t-test 13 ** BH P - WB HR 0.0411070 Transformed t-test 13 * BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 13 ** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380				0.0000095		13	***
BH DT - SC HR 0.0971471 Transformed t-test 14 BH DT - SC BR 0.1008707 t-test 13 BH P - RB PP 0.0000026 t-test 15 **** BH P - RB HR 0.0047967 Transformed t-test 13 ** BH P - WB PP 0.0000551 t-test 15 **** BH P - WB HR 0.0411070 Transformed t-test 13 * BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 15 **** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 BL WB - RB HR 0.9869320 t-test </td <td></td> <td></td> <td></td> <td>0.0629673</td> <td>t-test</td> <td></td> <td></td>				0.0629673	t-test		
BH DT - SC BR 0.1008707 t-test 13 BH P - RB PP 0.0000026 t-test 15 **** BH P - RB HR 0.0047967 Transformed t-test 13 ** BH P - WB PP 0.0000551 t-test 15 *** BH P - WB HR 0.0411070 Transformed t-test 13 * BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 15 **** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 BL WB - RB HR 0.9869320 t-test 10 BL SC - RB BR 0.0915679 t-test <					Transformed t-test		
BH P - RB PP 0.0000026 t-test 15 *** BH P - RB HR 0.0047967 Transformed t-test 13 ** BH P - WB PP 0.0000551 t-test 15 **** BH P - WB HR 0.0411070 Transformed t-test 13 * BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 15 **** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 13 *** BL WB - RB HR 0.9869320 t-test 11 BL WB - RB BR 0.0915679 t-test 10 BL SC - RB BR 0.01915679 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
BH P - RB HR 0.0047967 Transformed t-test 13 *** BH P - WB PP 0.0000551 t-test 15 **** BH P - WB HR 0.0411070 Transformed t-test 13 * BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 15 **** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 *** BL WB - RB HR 0.9869320 t-test 11 *** BL WB - RB BR 0.0915679 t-test 10 *** BL SC - RB BP 0.8923279 t-test 11 BL SC - RB BR 0.74					t-test		***
BH P - WB PP 0.0000551 t-test 15 **** BH P - WB HR 0.0411070 Transformed t-test 13 * BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 15 **** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 ** BL WB - RB HR 0.9869320 t-test 8 ** BL WB - RB BR 0.0915679 t-test 10 ** BL SC - RB PP 0.8923279 t-test 11 BL SC - RB HR 0.1034335 t-test 10 BL SC - RB BR 0.7428199 t-test							**
BH P - WB HR 0.0411070 Transformed t-test 13 * BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 15 **** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 ** BL WB - RB HR 0.9869320 t-test 8 ** BL WB - RB BR 0.0915679 t-test 10 ** BL SC - RB PP 0.8923279 t-test 11 ** BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test							***
BH P - SC PP 0.0000624 t-test 14 **** BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 15 **** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 BL WB - RB HR 0.9869320 t-test 8 BL WB - RB BR 0.0915679 t-test 10 BL SC - RB PP 0.8923279 t-test 11 BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>*</td></t<>							*
BH P - SC HR 0.0161774 Transformed t-test 13 * BH P - DT PP 0.0000121 t-test 15 *** BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 BL WB - RB HR 0.9869320 t-test 8 BL WB - RB BR 0.0915679 t-test 10 BL SC - RB PP 0.8923279 t-test 11 BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 11 BL DT - RB HR 0.0200050							***
BH P - DT HR 0.0094598 Transformed t-test 13 ** BL WB - RB PP 0.3115380 t-test 11 BL WB - RB HR 0.9869320 t-test 8 BL WB - RB BR 0.0915679 t-test 10 BL SC - RB PP 0.8923279 t-test 11 BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB BR 0.7428199 t-test 11 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB BR 0.0694710 t-test 9	ВН	P - SC	HR	0.0161774	Transformed t-test	13	*
BL WB - RB PP 0.3115380 t-test 11 BL WB - RB HR 0.9869320 t-test 8 BL WB - RB BR 0.0915679 t-test 10 BL SC - RB PP 0.8923279 t-test 11 BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL SC - WB BR 0.0525337 t-test 11 BL DT - RB PP 0.0525337 t-test 8 BL DT - RB BR 0.0694710 t-test 9 BL DT - WB PP 0.0679895 t-test 8 BL	ВН	P - DT	PP	0.0000121	t-test	15	***
BL WB - RB PP 0.3115380 t-test 11 BL WB - RB HR 0.9869320 t-test 8 BL WB - RB BR 0.0915679 t-test 10 BL SC - RB PP 0.8923279 t-test 11 BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 * BL DT - RB BR 0.0694710 t-test 9 * BL DT - WB HR 0.0230059 t-test 8	ВН	P - DT	HR	0.0094598	Transformed t-test	13	**
BL WB - RB BR 0.0915679 t-test 10 BL SC - RB PP 0.8923279 t-test 11 BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 BL DT - RB BR 0.0694710 t-test 9 BL DT - WB PP 0.0679895 t-test 11 BL DT - WB HR 0.0230059 t-test 9 BL DT - SC PP 0.0607361 t-test 9 BL	BL	WB - RB	PP	0.3115380		11	
BL SC - RB PP 0.8923279 t-test 11 BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 * BL DT - RB BR 0.0694710 t-test 9 BR 11 BL DT - WB PP 0.0679895 t-test 11 BR * BL DT - WB BR 0.1268540 t-test 9 * BL DT - SC PP 0.0607361 t-test 11 BR ** BL	BL	WB - RB	HR	0.9869320	t-test	8	
BL SC - RB HR 0.1034335 t-test 8 BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 * BL DT - RB BR 0.0694710 t-test 9 BL DT - WB PP 0.0679895 t-test 11 BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC BR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9 <td>BL</td> <td>WB - RB</td> <td>BR</td> <td>0.0915679</td> <td>t-test</td> <td>10</td> <td></td>	BL	WB - RB	BR	0.0915679	t-test	10	
BL SC - RB BR 0.7428199 t-test 10 BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 * BL DT - RB BR 0.0694710 t-test 9 BL 11 BL DT - WB PP 0.0679895 t-test 11 * BL DT - WB BR 0.1268540 t-test 9 * BL DT - SC PP 0.0607361 t-test 11 * BL DT - SC BR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	SC - RB	PP	0.8923279	t-test	11	
BL SC - WB PP 0.5912498 t-test 11 BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 * BL DT - RB BR 0.0694710 t-test 9 BL 11 BL DT - WB PP 0.0679895 t-test 11 * BL DT - WB HR 0.0230059 t-test 8 * BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	SC - RB	HR	0.1034335	t-test	8	
BL SC - WB HR 0.2170117 t-test 8 BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 BL DT - RB BR 0.0694710 t-test 9 BL DT - WB PP 0.0679895 t-test 11 BL DT - WB HR 0.0230059 t-test 8 * BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	SC - RB	BR	0.7428199	t-test	10	
BL SC - WB BR 0.0548135 t-test 10 BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 BL DT - RB BR 0.0694710 t-test 9 BL DT - WB PP 0.0679895 t-test 11 BL DT - WB HR 0.0230059 t-test 8 * BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	SC - WB	PP	0.5912498	t-test	11	
BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 * BL DT - RB BR 0.0694710 t-test 9 BL DT - WB PP 0.0679895 t-test 11 BL DT - WB HR 0.0230059 t-test 8 * BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	SC - WB	HR	0.2170117	t-test	8	
BL DT - RB PP 0.0525337 t-test 11 BL DT - RB HR 0.0200050 t-test 8 * BL DT - RB BR 0.0694710 t-test 9 BL DT - WB PP 0.0679895 t-test 11 BL DT - WB HR 0.0230059 t-test 8 * BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	SC - WB	BR	0.0548135	t-test	10	
BL DT - RB BR 0.0694710 t-test 9 BL DT - WB PP 0.0679895 t-test 11 BL DT - WB HR 0.0230059 t-test 8 * BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	DT - RB		0.0525337	t-test	11	
BL DT - WB PP 0.0679895 t-test 11 BL DT - WB HR 0.0230059 t-test 8 * BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	DT - RB	HR	0.0200050	t-test	8	*
BL DT - WB HR 0.0230059 t-test 8 * BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	DT - RB	BR	0.0694710	t-test	9	
BL DT - WB BR 0.1268540 t-test 9 BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	DT - WB	PP	0.0679895	t-test	11	
BL DT - SC PP 0.0607361 t-test 11 BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	DT - WB	HR	0.0230059	t-test	8	*
BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	DT - WB	BR	0.1268540	t-test	9	
BL DT - SC HR 0.0023709 t-test 8 ** BL DT - SC BR 0.0515357 t-test 9	BL	DT - SC	PP	0.0607361	t-test	11	
BL DT - SC BR 0.0515357 t-test 9			HR				**
		DT - SC			t-test	9	
BL P - RB PP 0.0026388 t-test 11 **	BL	P - RB	PP	0.0026388	t-test	11	**

(continued)

$\underline{(continued)}$						
Condition	Difference	Measure	p	Test	n	Significance
BL	P - RB	HR	0.2800986	t-test	6	
BL	P - WB	PP	0.0030397	t-test	11	**
BL	P - WB	HR	0.2075354	t-test	6	
BL	P - SC	PP	0.0038631	t-test	11	**
BL	P - SC	HR	0.0855441	t-test	6	
BL	P - DT	PP	0.0575016	t-test	11	
BL	P - DT	HR	0.0152101	t-test	6	*
IH	WB - RB	PP	0.0004610	t-test	15	***
IH	WB - RB	HR	0.0188344	t-test	11	*
IH	WB - RB	BR	0.0074935	t-test	15	**
IH	SC - RB	PP	0.0122546	t-test	14	*
IH	SC - RB	HR	0.3552732	t-test	10	
IH	SC - RB	BR	0.1188954	t-test	15	
IH I	SC - WB	PP	0.1694595	t-test	14	
IH	SC - WB	HR	0.0243429	t-test	10	*
IH	SC - WB	BR	0.0317792	t-test	15	*
IH	DT - RB	PP	0.0000487	t-test	15	***
IH	DT - RB	HR	0.4334571	t-test	11	
IH	DT - RB	BR	0.3322883	t-test	15	
IH	DT - WB	PP	0.1077157	t-test	15	
IH	DT - WB	HR	0.0035532	t-test	11	**
IH	DT - WB	BR	0.0022952	t-test	15	**
IH	DT - SC	PP	0.0437527	t-test	14	*
IH	DT - SC	HR	0.1613719	t-test	10	
IH	DT - SC	BR	0.5106319	t-test	15	
IH	P - RB	PP	0.0001504	t-test	15	***
IH	P - RB	HR	0.0023820	t-test	10	**
IH	P - WB	PP	0.0036183	t-test	15	**
TH	P - WB	HR	0.0288561	t-test	10	*
IH	P - SC	PP	0.0016492	t-test	14	**
IH	P - SC	HR	0.0063270	t-test	10	**
IH	P - DT	PP	0.0049110	t-test	15	**
ĪH	P - DT	HR	0.0043110	t-test	10	**
IL	WB - RB	PP	0.0014345	t-test	13	***
IL	WB - RB	HR		t-test	14	*
IL	WB - RB				13	**
IL	SC - RB	BR PP	0.0029280 0.0047788	t-test t-test	13	**
	SC - RB	HR			_	
IL			0.4931241 0.1716031	t-test	14	
IL	SC - RB	BR		t-test	14	
IL	SC - WB	РР	0.1501126	t-test	13	***
IL	SC - WB	HR	0.0000160	t-test	14	**
IL	SC - WB	BR	0.0056543	t-test	13	***
IL	DT - RB	PP	0.0000074	t-test	13	10010010
IL	DT - RB	HR	0.9564261	t-test	14	*
IL	DT - RB	BR	0.0109817	t-test	14	Φ
IL	DT - WB	PP	0.4897627	t-test	13	4
IL	DT - WB	HR	0.0153782	t-test	14	*

(continued)

Condition	Difference	Measure	р	Test	n	Significance
IL	DT - WB	BR	0.0141019	t-test	13	*
IL	DT - SC	PP	0.0502407	t-test	13	
IL	DT - SC	HR	0.4432256	t-test	14	
IL	DT - SC	BR	0.0396767	t-test	14	*
IL	P - RB	PP	0.0000892	t-test	11	***
IL	P - RB	HR	0.0552440	t-test	11	
IL	P - WB	PP	0.0054046	t-test	11	**
IL	P - WB	HR	0.1202428	t-test	11	
IL	P - SC	PP	0.0011554	t-test	11	**
IL	P - SC	HR	0.0209275	t-test	11	*
IL	P - DT	PP	0.0015878	t-test	11	**
IL	P - DT	HR	0.0093801	t-test	11	**