Do environmental interventions ameliorate gut dysbiosis in Huntington disease mice?

Data Analysis

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Contents

Executive Summary

- The data were preprocessed to remove any samples with more than 80% missing data which resulted in removing four mice from the study.
- Except for the clinical variable clasping score, all other single time-point observations, such as Colon length, were modelled using Linear mixed models (LMMs). A LMM is an extension of a linear model to incorporate both fixed-effect terms and random effect terms. For repeated measures, time was added as covariate in the LMM. All two-way interactions between fixed effects were included in the LMM models.
- For the variable clasping score measured on an ordinal scale, we fitted a cumulative linear mixed model with Laplace approximation.
- For models with at least one significant effect, we performed a post-hoc contrast analysis on estimated marginal means to identify significant pairs using the emmeans R package (Lenth 2021). The emmeans method performs pairwise comparisons on the levels of significant main effects while controlling for other factors. For example, if genotype was significant in the LMM, a pairwise comparisons between two genotypes separately for each sex and housing type would be conducted. All the p-values from the pairwise comparisons were then adjusted for multiple comparisons using Tukey adjustment.

1 Data preprocessing (Removing insufficient samples)

Data from '210330_Gubert_EE-EX_Data_All.xlsx' were analysed by combining the male and female details from 'Female_EEEX_Data_Final' and 'Male_EEEX_Data_Final.'

First, the samples with more than 80% missing data}were removed from the analysis (insufficient data). As a result, 4 mice were removed from the analysis. These four samples did not have any clinical information (i.e. Colon Length, Gut Permeability, Fecal Water content at Week 12, Isobutyrate, 2-Methyl butyrate, Isovalerate). Those mice fell into the following combination of Sex, genotype and housing condition:
– Female/ HD/ EE – Female/ HD/ EX – Female/ WT/ SH – Male/ HD/ EX

After the preprocessing, the composition of the samples are as follows:

```
##                   Sex Female Male
## Genotype Housing
## WT       SH              12   12
##          EE              12   12
##          EX              12   11
## HD       SH              11   12
##          EE              11   12
##          EX              11   11
```

2 Effect of Housing, Genotype and Sex on Brain Weight

In this section, we use LMM to find the significant variables that are associated with the Brain weight of a mouse. LMM model considers both fixed and random effects. Fixed effects are variables that we expect

will have an impact on our response variable. For example, we expect Sex, genotype and housing would impact the brain weight of a mouse. Thus, those variables (i.e. Sex, genotype and housing) are considered fixed effects. Random effects are usually grouping factors that may have an impact on the response variable but we are not specifically interested in their impact. In this study, mice are housed within cages (random effect), while we are investigating the effect of sex (male, female); genotype (WT, HD) and housing (SH, EE, EX) (fixed effects).

```
##
## ================================================================
##                                  Dependent variable:
##                              ---------------------------
##                                       Brain weight
## ----------------------------------------------------------------
## GenotypeHD                             -0.049**
##                                        p = 0.002
##
## HousingEE                                0.019
##                                        p = 0.205
##
## HousingEX                                0.021
##                                        p = 0.155
##
## SexMale                                 0.030*
##                                        p = 0.039
##
## GenotypeHD:SexMale                       0.018
##                                        p = 0.211
##
## HousingEE:SexMale                       -0.026
##                                        p = 0.145
##
## HousingEX:SexMale                       -0.010
##                                        p = 0.553
##
## GenotypeHD:HousingEE                     0.008
##                                        p = 0.641
##
## GenotypeHD:HousingEX                     0.013
##                                        p = 0.458
##
## Constant                               0.435***
##                                        p = 0.000
##
## ----------------------------------------------------------------
## Observations                              138
## Log Likelihood                          250.526
## Akaike Inf. Crit.                      -477.051
## Bayesian Inf. Crit.                    -442.827
## ================================================================
## Note:                 + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                             Constants are significant (p<0.001)
```

- Based on the LMM, significant variables are:
  - Sex - Genotype

- A significant parameter with a positive value (i.e > 0) indicates a positive effect on the average brain weight. For example, the average brain weight is higher for male mice than female mice.

3 LMM for all interested variables

```
##
## ================================================================================
##                                        Dependent variable:
##                        ---------------------------------------------------------
##                        Gut permeability Gut transit time Colon length Caecum weight
##                              (1)              (2)            (3)           (4)
## --------------------------------------------------------------------------------
## GenotypeHD                   -0.059           -9.049         -0.642+        0.036
##                            p = 0.818        p = 0.658      p = 0.058     p = 0.232
##
## HousingEE                    -0.108           -33.768         -0.336        -0.014
##                            p = 0.692        p = 0.121      p = 0.329     p = 0.650
##
## HousingEX                    -0.350           -8.297          -0.329        0.036
##                            p = 0.273        p = 0.720      p = 0.339     p = 0.251
##
## SexMale                      -0.324           12.907          0.343         0.011
##                            p = 0.216        p = 0.553      p = 0.292     p = 0.715
##
## GenotypeHD:SexMale           0.341            -0.489          0.558+       -0.044
##                            p = 0.200        p = 0.983      p = 0.097     p = 0.144
##
## HousingEE:SexMale            0.098            7.170           -0.419        0.042
##                            p = 0.749        p = 0.786      p = 0.299     p = 0.249
##
## HousingEX:SexMale            0.096            -0.412          -0.288        0.045
##                            p = 0.767        p = 0.989      p = 0.473     p = 0.219
##
## GenotypeHD:HousingEE         0.097            42.821          0.504        -0.024
##                            p = 0.752        p = 0.111      p = 0.213     p = 0.509
##
## GenotypeHD:HousingEX         0.005            5.793           0.089        -0.036
##                            p = 0.988        p = 0.833      p = 0.825     p = 0.324
##
## Constant                    0.757***         141.487***      8.249***     0.300***
##                            p = 0.001        p = 0.000      p = 0.000     p = 0.000
##
## --------------------------------------------------------------------------------
## Observations                   89               110            134           138
## Log Likelihood              -63.266          -527.645       -152.068      152.118
## Akaike Inf. Crit.           150.532          1079.290       328.136       -280.235
## Bayesian Inf. Crit.         178.965          1110.552       361.980       -246.011
## ================================================================================
## Note:                                      + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                                                 Constants are significant (p<0.001)
```

```
##
## ================================================================================================
##                                              Dependent variable:
##                      ------------------------------------------------------------------------
##                      Caecum length Swing time forepaw Swing time hind paw Stride time forepaw
##                           (1)             (2)                (3)                (4)
## ------------------------------------------------------------------------------------------------
## GenotypeHD              0.219+          0.015*             0.011*             -0.017
##                        p = 0.097       p = 0.042          p = 0.049          p = 0.637
##
## HousingEE               -0.199           0.001              0.004              0.024
##                        p = 0.143       p = 0.930          p = 0.492          p = 0.526
##
## HousingEX                0.023           0.006             -0.003             -0.003
##                        p = 0.861       p = 0.417          p = 0.623          p = 0.934
##
## SexMale                  0.016           -0.002             -0.002             0.029
##                        p = 0.900       p = 0.752          p = 0.739          p = 0.429
##
## GenotypeHD:SexMale      -0.218+          -0.006             0.001              -0.019
##                        p = 0.098       p = 0.358          p = 0.862          p = 0.599
##
## HousingEE:SexMale        0.255          0.015+             0.005              -0.019
##                        p = 0.113       p = 0.084          p = 0.400          p = 0.665
##
## HousingEX:SexMale        0.095           0.002              0.004             -0.014
##                        p = 0.544       p = 0.786          p = 0.500          p = 0.761
##
## GenotypeHD:HousingEE     0.068           -0.004             -0.005             0.028
##                        p = 0.665       p = 0.632          p = 0.426          p = 0.524
##
## GenotypeHD:HousingEX    -0.151           -0.002             -0.003             0.050
##                        p = 0.338       p = 0.830          p = 0.686          p = 0.271
##
## Constant                2.542***         0.106***           0.093***           0.306***
##                        p = 0.000       p = 0.000          p = 0.000          p = 0.000
##
## ------------------------------------------------------------------------------------------------
## Observations              134             133                133                133
## Log Likelihood          -50.442          307.191            327.459            176.381
## Akaike Inf. Crit.       124.884          -590.382           -630.918           -328.762
## Bayesian Inf. Crit.     158.727          -556.636           -597.171           -295.016
## ================================================================================================
## Note:                                                  + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                                                              Constants are significant (p<0.001)
```

```
##
## ================================================================================
##                                        Dependent variable:
##                     ---------------------------------------------------------
##                     Stride time hind paw Stride length forepaw Stride length hindpaw
##                             (1)                   (2)                   (3)
## --------------------------------------------------------------------------------
## GenotypeHD                -0.025                0.432*                0.357+
##                          p = 0.508             p = 0.043             p = 0.071
##
## HousingEE                  0.024                 0.039                 0.042
##                          p = 0.547             p = 0.856             p = 0.831
##
## HousingEX                 -0.006                0.420+                0.445*
##                          p = 0.877             p = 0.063             p = 0.036
##
## SexMale                    0.029                -0.165                -0.161
##                          p = 0.445             p = 0.417             p = 0.397
##
## GenotypeHD:SexMale        -0.010                -0.368+               -0.236
##                          p = 0.802             p = 0.086             p = 0.230
##
## HousingEE:SexMale         -0.017                 0.366                0.406+
##                          p = 0.713             p = 0.153             p = 0.092
##
## HousingEX:SexMale         -0.011                -0.067               -0.077
##                          p = 0.809             p = 0.795             p = 0.748
##
## GenotypeHD:HousingEE       0.035                -0.217               -0.171
##                          p = 0.462             p = 0.390             p = 0.469
##
## GenotypeHD:HousingEX       0.049                -0.436+              -0.538*
##                          p = 0.298             p = 0.097             p = 0.031
##
## Constant                  0.311***              4.889***              4.956***
##                          p = 0.000             p = 0.000             p = 0.000
##
## --------------------------------------------------------------------------------
## Observations                133                   133                   133
## Log Likelihood            178.083               -124.037              -115.346
## Akaike Inf. Crit.         -332.166               272.074               254.692
## Bayesian Inf. Crit.       -298.420               305.820               288.439
## ================================================================================
## Note:                                  + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                                              Constants are significant (p<0.001)
```

```
##
## ================================================================================
##                                        Dependent variable:
##                                ---------------------------------------------------
##                                Absolute paw angle forepaw Absolute paw angle hindpaw
##                                          (1)                         (2)
## --------------------------------------------------------------------------------
## GenotypeHD                               -0.604                      -0.352
##                                        p = 0.747                   p = 0.843
##
## HousingEE                                -0.491                      -0.221
##                                        p = 0.803                   p = 0.905
##
## HousingEX                                -1.221                      -2.144
##                                        p = 0.541                   p = 0.261
##
## SexMale                                  -1.687                       0.189
##                                        p = 0.368                   p = 0.914
##
## GenotypeHD:SexMale                        2.140                      -2.151
##                                        p = 0.263                   p = 0.237
##
## HousingEE:SexMale                        -0.216                      -1.872
##                                        p = 0.925                   p = 0.392
##
## HousingEX:SexMale                         2.653                       0.743
##                                        p = 0.258                   p = 0.737
##
## GenotypeHD:HousingEE                      0.232                       1.691
##                                        p = 0.920                   p = 0.439
##
## GenotypeHD:HousingEX                     -0.826                       0.387
##                                        p = 0.722                   p = 0.861
##
## Constant                                7.912***                   13.897***
##                                       p = 0.00000                 p = 0.000
##
## --------------------------------------------------------------------------------
## Observations                              133                         133
## Log Likelihood                         -370.485                    -383.695
## Akaike Inf. Crit.                      764.970                     791.391
## Bayesian Inf. Crit.                    798.716                     825.137
## ================================================================================
## Note:                                    + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                                                Constants are significant (p<0.001)
```

```
##
## ================================================================
##                                Dependent variable:
##                     ------------------------------------------
##                     Stance width forepaw  Stance width hindpaw
##                              (1)                  (2)
## ----------------------------------------------------------------
## GenotypeHD                -0.258**              -0.145
##                           p = 0.009            p = 0.305
##
## HousingEE                  -0.099               -0.240
##                           p = 0.305            p = 0.110
##
## HousingEX                   0.011               -0.043
##                           p = 0.914            p = 0.773
##
## SexMale                    0.219*               0.134
##                           p = 0.022            p = 0.336
##
## GenotypeHD:SexMale         -0.059               -0.161
##                           p = 0.528            p = 0.259
##
## HousingEE:SexMale          -0.225+              -0.021
##                           p = 0.054            p = 0.902
##
## HousingEX:SexMale          -0.196+              -0.130
##                           p = 0.095            p = 0.456
##
## GenotypeHD:HousingEE        0.189                0.082
##                           p = 0.102            p = 0.631
##
## GenotypeHD:HousingEX        0.098                0.069
##                           p = 0.398            p = 0.692
##
## Constant                  1.628***             2.558***
##                           p = 0.000            p = 0.000
##
## ----------------------------------------------------------------
## Observations                133                  133
## Log Likelihood             -25.147              -58.494
## Akaike Inf. Crit.          74.295               140.989
## Bayesian Inf. Crit.        108.041              174.735
## ================================================================
## Note:                 + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                             Constants are significant (p<0.001)
```

```
##
## ================================================================================
##                                        Dependent variable:
##                          ------------------------------------------------------
##                          propel:brake ratio forepaw propel:brake ratio hind paw
##                                    (1)                          (2)
## --------------------------------------------------------------------------------
## GenotypeHD                          0.895*                       0.152
##                                   p = 0.025                    p = 0.830
##
## HousingEE                           0.738+                       0.580
##                                   p = 0.070                    p = 0.434
##
## HousingEX                           0.044                        -0.468
##                                   p = 0.913                    p = 0.535
##
## SexMale                             -0.493                       -0.187
##                                   p = 0.195                    p = 0.790
##
## GenotypeHD:SexMale                  0.088                        1.183
##                                   p = 0.820                    p = 0.108
##
## HousingEE:SexMale                   -0.355                       -0.632
##                                   p = 0.447                    p = 0.468
##
## HousingEX:SexMale                   0.153                        0.005
##                                   p = 0.745                    p = 0.996
##
## GenotypeHD:HousingEE                0.057                        0.002
##                                   p = 0.902                    p = 0.999
##
## GenotypeHD:HousingEX                -0.592                       -0.495
##                                   p = 0.216                    p = 0.576
##
## Constant                           1.665***                     4.222***
##                                  p = 0.00000                  p = 0.000
##
## --------------------------------------------------------------------------------
## Observations                         133                          133
## Log Likelihood                     -194.767                     -276.369
## Akaike Inf. Crit.                  413.533                      576.739
## Bayesian Inf. Crit.                447.279                      610.485
## ================================================================================
## Note:                                  + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                                              Constants are significant (p<0.001)
```

```
##
## ================================================================================
##                                        Dependent variable:
##                          ---------------------------------------------------
##                            Acetate     Proprionate  Isobutyrate    Butyrate
##                              (1)           (2)          (3)          (4)
## --------------------------------------------------------------------------------
## GenotypeHD                -8602.928    -25145.620    2277.939     6972.407
##                           p = 0.822     p = 0.602    p = 0.237    p = 0.907
##
## HousingEE                 -1023.549     -6400.128     233.152     58994.610
##                           p = 0.980     p = 0.899    p = 0.906    p = 0.352
##
## HousingEX                  4767.927     -10673.920    810.795     53362.420
##                           p = 0.906     p = 0.833    p = 0.683    p = 0.401
##
## SexMale                   -21938.740    -23584.870    -130.173    67812.740
##                           p = 0.566     p = 0.623    p = 0.945    p = 0.262
##
## GenotypeHD:SexMale         23581.420     2152.242     -114.541    -44907.600
##                           p = 0.539     p = 0.965    p = 0.952    p = 0.457
##
## HousingEE:SexMale         -26735.560    -51662.690    -1119.766   -71501.210
##                           p = 0.568     p = 0.384    p = 0.626    p = 0.332
##
## HousingEX:SexMale         -32544.930    -49029.750    -2573.925  -161105.800*
##                           p = 0.491     p = 0.413    p = 0.277    p = 0.043
##
## GenotypeHD:HousingEE       14884.980     51773.530    -1296.484   -23170.360
##                           p = 0.750     p = 0.383    p = 0.573    p = 0.750
##
## GenotypeHD:HousingEX       8195.979      27804.550    -2257.265    83812.260
##                           p = 0.861     p = 0.640    p = 0.338    p = 0.265
##
## Constant                  96084.230** 173487.900*** 4510.105**    99543.590*
##                           p = 0.002    p = 0.00002   p = 0.003    p = 0.033
##
## --------------------------------------------------------------------------------
## Observations                  90           90           90           90
## Log Likelihood             -975.156     -1021.808    -764.875     -1046.152
## Akaike Inf. Crit.          1974.312     2067.616     1553.751     2116.303
## Bayesian Inf. Crit.        2002.896     2096.201     1582.335     2144.888
## ================================================================================
## Note:                                  + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                                              Constants are significant (p<0.001)
```

```
##
## ================================================================================
##                                        Dependent variable:
##                          ---------------------------------------------------
##                          Methylbutyrate2 Isovalerate  Valerate   Caproate
##                                (1)           (2)         (3)         (4)
## --------------------------------------------------------------------------------
## GenotypeHD                 1548.701+     1747.519    5361.005    55.467
##                            p = 0.070     p = 0.196   p = 0.193  p = 0.831
##
## HousingEE                   389.604       282.163    1263.034    -93.316
##                            p = 0.643     p = 0.838   p = 0.762  p = 0.734
##
## HousingEX                   891.358       480.120    6866.115    156.966
##                            p = 0.300     p = 0.729   p = 0.117  p = 0.570
##
## SexMale                     276.116      -428.799    3540.237   -111.608
##                            p = 0.729     p = 0.742   p = 0.375  p = 0.667
##
## GenotypeHD:SexMale          -65.593       75.254     -2968.780   149.429
##                            p = 0.936     p = 0.955   p = 0.463  p = 0.568
##
## HousingEE:SexMale           -592.407      -422.388     -21.168    -47.981
##                            p = 0.546     p = 0.792   p = 0.997  p = 0.880
##
## HousingEX:SexMale          -1969.476+     -1446.633  -12036.940* -177.854
##                            p = 0.064     p = 0.378   p = 0.027  p = 0.580
##
## GenotypeHD:HousingEE       -1553.430     -1478.174   -5598.832   -75.582
##                            p = 0.127     p = 0.362   p = 0.258  p = 0.812
##
## GenotypeHD:HousingEX       -1053.377     -1504.676    20.468    -179.372
##                            p = 0.300     p = 0.360   p = 0.997  p = 0.576
##
## Constant                  1924.892**    3195.218**   6791.438*  652.217**
##                            p = 0.003     p = 0.003   p = 0.029  p = 0.002
##
## --------------------------------------------------------------------------------
## Observations                  90            90          90         90
## Log Likelihood             -716.723      -737.957    -845.783   -584.894
## Akaike Inf. Crit.          1457.446      1499.913    1715.565   1193.787
## Bayesian Inf. Crit.        1486.030      1528.497    1744.149   1222.372
## ================================================================================
## Note:                                  + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                                              Constants are significant (p<0.001)
```

4 LMM with Week as a covariate

	Dependent variable:					
	Food_Intake (1)	Water_Intake (2)	Weight (3)	Rotarod (4)	FH20 (5)	FOutput (6)
GenotypeHD	0.090	0.166	0.843	67.587*	4.573	4.530+
	p = 0.578	p = 0.542	p = 0.437	p = 0.021	p = 0.470	p = 0.060
HousingEE	-0.031	-0.630+	0.989	78.859*	-8.670	-4.309
	p = 0.872	p = 0.059	p = 0.407	p = 0.021	p = 0.235	p = 0.119
HousingEX	-0.037	-0.797*	2.709*	-20.350	10.050	-3.374
	p = 0.848	p = 0.019	p = 0.030	p = 0.534	p = 0.173	p = 0.221
SexMale	-0.164	0.393	6.267***	8.769	10.498	2.498
	p = 0.312	p = 0.156	p = 0.00001	p = 0.752	p = 0.105	p = 0.287
Week	-0.027	-0.031	0.820***	8.905***	0.777	0.457*
	p = 0.141	p = 0.306	p = 0.000	p = 0.001	p = 0.130	p = 0.033
GenotypeHD:SexMale	-0.070	-0.313*	0.292	-9.084	-2.433	1.370
	p = 0.405	p = 0.029	p = 0.758	p = 0.555	p = 0.586	p = 0.336
HousingEE:SexMale	0.061	0.297+	-1.293	36.296+	2.359	-1.076
	p = 0.553	p = 0.084	p = 0.269	p = 0.062	p = 0.666	p = 0.534
HousingEX:SexMale	0.067	0.280	-1.824	16.699	-4.134	-1.066
	p = 0.511	p = 0.102	p = 0.124	p = 0.378	p = 0.451	p = 0.539
GenotypeHD:Week	-0.007	0.066*	-0.218***	-14.385***	-0.490	-0.367+
	p = 0.647	p = 0.017	p = 0.0002	p = 0.000	p = 0.295	p = 0.057
SexMale:Week	0.006	-0.084**	0.111+	-3.231	-0.732	-0.251
	p = 0.687	p = 0.003	p = 0.053	p = 0.179	p = 0.118	p = 0.193
HousingEE:Week	0.005	0.074*	-0.256***	-4.354	0.758	0.217
	p = 0.789	p = 0.029	p = 0.0003	p = 0.136	p = 0.183	p = 0.354
HousingEX:Week	0.034+	0.125***	-0.443***	-0.107	-0.683	0.114
	p = 0.089	p = 0.0003	p = 0.000	p = 0.972	p = 0.232	p = 0.630
GenotypeHD:HousingEE	0.035	-0.100	1.290	-12.616	-0.715	-1.063
	p = 0.735	p = 0.549	p = 0.270	p = 0.503	p = 0.896	p = 0.539
GenotypeHD:HousingEX	0.008	-0.186	1.154	25.184	-4.154	1.116
	p = 0.939	p = 0.271	p = 0.323	p = 0.188	p = 0.448	p = 0.520
Constant	1.301***	1.685***	13.968***	119.417***	44.833***	7.738***
	p = 0.000	p = 0.000	p = 0.000	p = 0.00003	p = 0.000	p = 0.001

```
## ------------------------------------------------------------------------------------------
## Observations              215         216          973         834         803         834
## Log Likelihood         -3.316    -108.975    -1991.683   -4559.335   -3089.079   -2495.876
## Akaike Inf. Crit.      40.632     251.949     4017.366    9152.671    6212.158    5025.751
## Bayesian Inf. Crit.    96.704     308.105     4100.068    9232.708    6291.539    5105.789
## ==========================================================================================
## Note:                                          + p<0.1; * p<0.05; ** p<0.01; *** p<0.001
##                                                      Constants are significant (p<0.001)
```

5 Modelling the variable clasping

```
##                   0  1  2 3  4
## Clasping_Week6  123  7  9 0  0
## Clasping_Week7  117 10 11 1  0
## Clasping_Week8  114 11 14 0  0
## Clasping_Week9   98 17 21 2  1
## Clasping_Week10  97 15 22 3  1
## Clasping_Week11  90 17 26 3  3
## Clasping_Week12  68  8 45 7 11
```

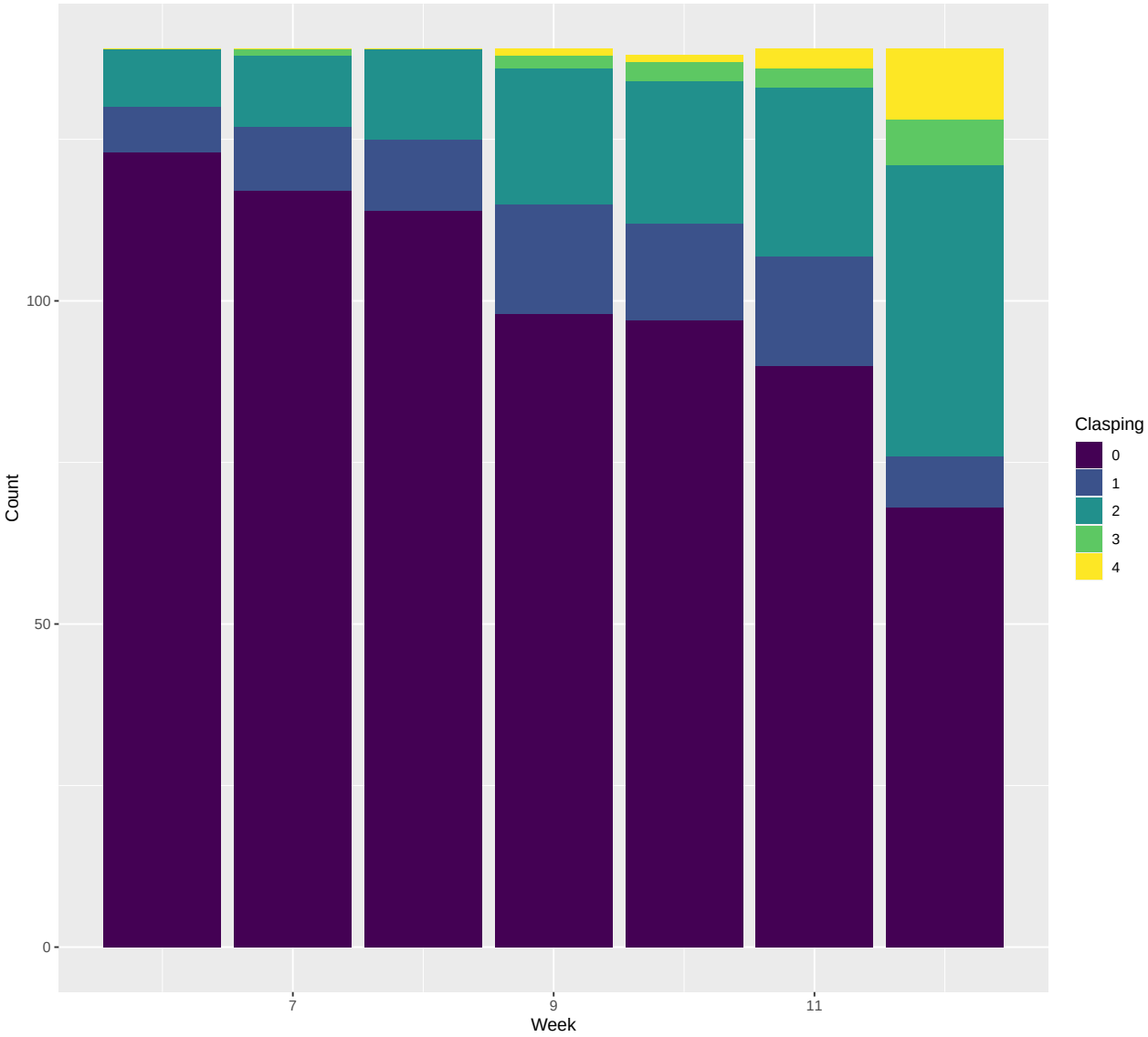

Figure 1: Bar plot for clasping over the 5 weeks

- Cumulative Link Mixed Models are used to model clasping variable

We will fit the following cumulative link mixed model to the Clasping variable(Y_i):

$logit(P(Y_i \leq j)) = \theta_j - \beta_1(Genotype_i) - \beta_2(Housing_i) - \beta_3(Sex_i) - \beta_4(Week_i) - u(Box_i)\backslash$ where $i = 1, ..., 973$ and $j = 0, ..., 4$.

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
##
## formula: Clasping ~ Genotype + Housing + Sex + Week + (1 | Box)
## data:    long_data_clasping_sorted
##
##  link  threshold nobs logLik  AIC     niter     max.grad cond.H
##  logit flexible  972  -752.18 1524.36 618(2477) 7.67e-05 6.4e+03
##
## Random effects:
##  Groups Name        Variance Std.Dev.
##  Box    (Intercept) 0.5998   0.7745
## Number of groups:  Box 36
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## GenotypeHD  0.804965   0.306927   2.623  0.00872 **
## HousingEE  -0.161811   0.375274  -0.431  0.66634
## HousingEX  -0.006249   0.372239  -0.017  0.98661
## SexMale     0.611638   0.306046   1.999  0.04566 *
## Week        0.413447   0.042902   9.637  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Threshold coefficients:
##     Estimate Std. Error z value
## 0|1   5.6206     0.5535   10.15
## 1|2   6.2419     0.5617   11.11
## 2|3   8.4128     0.6054   13.90
## 3|4   9.1692     0.6350   14.44
## (1 observation deleted due to missingness)
```

The coefficients of Genotype HD, Male and Week are positive indicating that the clasping rate being higher is more likely for higher weeks, among males and for HD group. The odds ratio of clasping rate being in category j or above for male to female is 1.84.

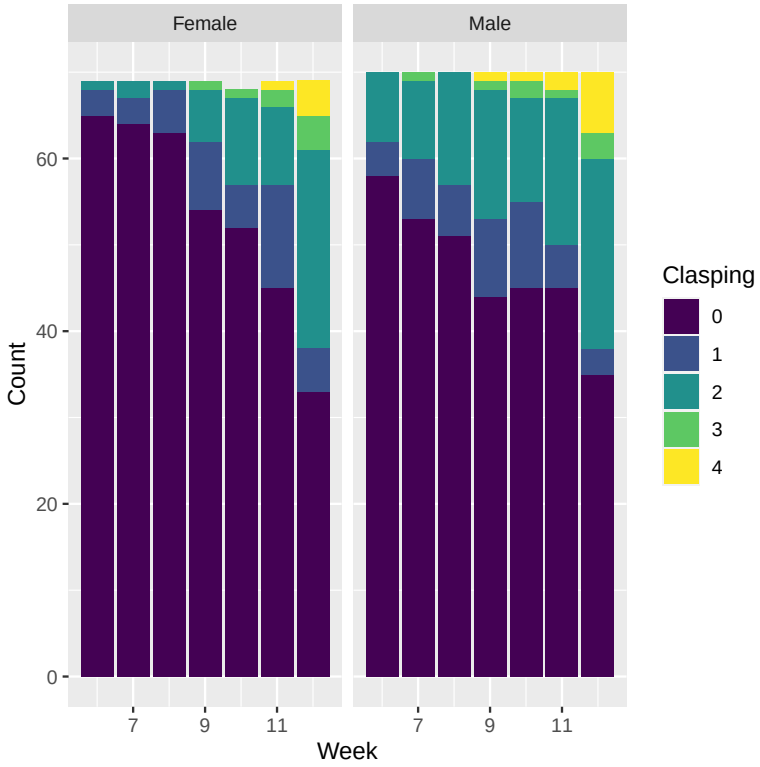

Figure 2: Bar plot for clasping over the 5 weeks between sex

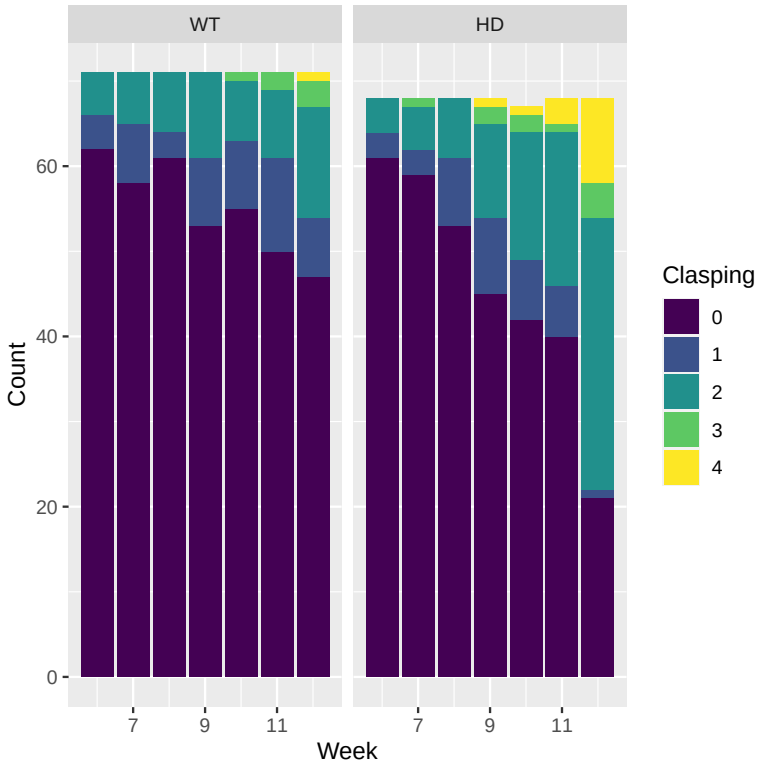

Figure 3: Bar plot for clasping over the 5 weeks between genotype

6 Post-Hoc test for Clinical variables

Except for the clasping score, we modelled all other clinical variables using Linear Mixed Models (LMMs). Since the clasping score was an ordinal response, a Cumulative Link Mixed Model was used instead of an LMM.

Example of interpretation for Table 1: Among different housing types, SH showed the highest number of significant pairwise differences in brain weight among different sex and genotype contrasts. With the exception of housing type EX, both the other housing types showed a significant increase in average brain weight in WT female mice compared to HD counterparts. In addition, HD male mice have greater brain weight than HD female mice on average in SH housing.

Figure 1 illustrates the pairwise comparisons. The blue bars are the confidence intervals for the estimated marginal means. However, pairwise comparisons are done using the red arrows, instead of using the confidence intervals directly. Pairwise comparison is considered to be significant if a red arrow from contrast does not overlap with another contrasts arrow. For instance in Figure 4, the two red arrows from WT male and HD female mice do not overlap in SH housing and are thus deemed significant.

6.1 Linear Mixed Model

6.1.1 Brain weight

Table 1: Post-hoc results for genotype and sex given housing type in variable brain weight

contrast	Housing	estimate	SE	df	t.ratio	p.value
WT Female - HD Female	SH	0.0487	0.0139	26	3.5109	**0.0084**
WT Female - WT Male	SH	-0.0300	0.0138	26	-2.1780	0.1560
WT Female - HD Male	SH	0.0008	0.0168	26	0.0496	1.0000
HD Female - WT Male	SH	-0.0787	0.0170	26	-4.6282	**0.0005**
HD Female - HD Male	SH	-0.0479	0.0139	26	-3.4509	**0.0097**
WT Male - HD Male	SH	0.0309	0.0138	26	2.2384	0.1394
WT Female - HD Female	EE	0.0407	0.0140	26	2.9098	**0.0346**
WT Female - WT Male	EE	-0.0045	0.0138	26	-0.3266	0.9877
WT Female - HD Male	EE	0.0183	0.0168	26	1.0904	0.6984
HD Female - WT Male	EE	-0.0452	0.0172	26	-2.6237	0.0646
HD Female - HD Male	EE	-0.0223	0.0140	26	-1.5985	0.3969
WT Male - HD Male	EE	0.0228	0.0138	26	1.6541	0.3674
WT Female - HD Female	EX	0.0359	0.0139	26	2.5783	0.0710
WT Female - WT Male	EX	-0.0198	0.0139	26	-1.4236	0.4965
WT Female - HD Male	EX	-0.0018	0.0170	26	-0.1042	0.9996
HD Female - WT Male	EX	-0.0557	0.0172	26	-3.2347	**0.0164**
HD Female - HD Male	EX	-0.0376	0.0140	26	-2.6902	0.0561
WT Male - HD Male	EX	0.0180	0.0140	26	1.2887	0.5780

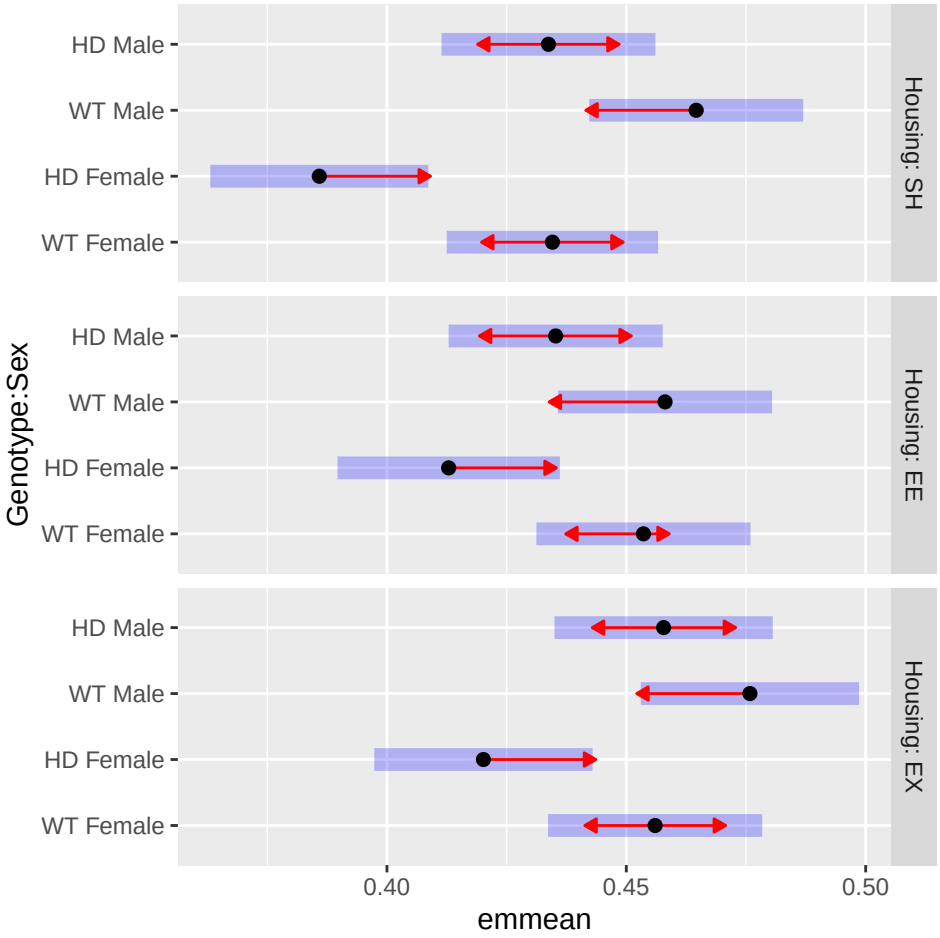

Figure 4: Graphical comparisons from emmeans method

6.1.2 Swing time forepaw

contrast	Housing	Sex	estimate	SE	df	t.ratio	p.value
WT - HD	SH	Female	-0.0146	0.0068	26	-2.1486	**0.0412**
WT - HD	EE	Female	-0.0106	0.0068	26	-1.5506	0.1331
WT - HD	EX	Female	-0.0128	0.0070	26	-1.8284	0.0790
WT - HD	SH	Male	-0.0082	0.0068	26	-1.2020	0.2402
WT - HD	EE	Male	-0.0041	0.0069	26	-0.6007	0.5532
WT - HD	EX	Male	-0.0063	0.0070	26	-0.9068	0.3728

6.1.3 Swing time hindpaw

contrast	Housing	Sex	estimate	SE	df	t.ratio	p.value
WT - HD	SH	Female	-0.0107	0.0052	26	-2.0699	**0.0485**
WT - HD	EE	Female	-0.0056	0.0052	26	-1.0745	0.2925
WT - HD	EX	Female	-0.0080	0.0053	26	-1.5060	0.1441
WT - HD	SH	Male	-0.0116	0.0052	26	-2.2483	**0.0333**

(continued)

contrast	Housing	Sex	estimate	SE	df	t.ratio	p.value
WT - HD	EE	Male	-0.0065	0.0052	26	-1.2391	0.2264
WT - HD	EX	Male	-0.0090	0.0053	26	-1.6785	0.1052

6.1.4 Stride length forepaw

contrast	Housing	Sex	estimate	SE	df	t.ratio	p.value
WT - HD	SH	Female	-0.4323	0.2028	26	-2.1319	**0.0426**
WT - HD	EE	Female	-0.2148	0.2033	26	-1.0566	0.3004
WT - HD	EX	Female	0.0042	0.2099	26	0.0200	0.9842
WT - HD	SH	Male	-0.0643	0.2028	26	-0.3172	0.7536
WT - HD	EE	Male	0.1532	0.2055	26	0.7455	0.4627
WT - HD	EX	Male	0.3722	0.2099	26	1.7735	0.0879

6.1.5 Stride length hindpaw

contrast	Genotype	Sex	estimate	SE	df	t.ratio	p.value
SH - EE	WT	Female	-0.0424	0.1968	26	-0.2156	0.9747
SH - EX	WT	Female	-0.4451	0.2010	26	-2.2147	0.0874
EE - EX	WT	Female	-0.4027	0.2013	26	-2.0004	0.1322
SH - EE	HD	Female	0.1281	0.2027	26	0.6322	0.8039
SH - EX	HD	Female	0.0928	0.2072	26	0.4481	0.8957
EE - EX	HD	Female	-0.0353	0.2076	26	-0.1699	0.9842
SH - EE	WT	Male	-0.4487	0.1998	26	-2.2454	0.0822
SH - EX	WT	Male	-0.3685	0.2010	26	-1.8337	0.1786
EE - EX	WT	Male	0.0801	0.2042	26	0.3923	0.9189
SH - EE	HD	Male	-0.2781	0.2027	26	-1.3723	0.3696
SH - EX	HD	Male	0.1694	0.2072	26	0.8177	0.6956
EE - EX	HD	Male	0.4475	0.2076	26	2.1561	0.0981

contrast	Genotype	estimate	SE	df	t.ratio	p.value
SH - EE	WT	-0.2455	0.1611	26	-1.5246	0.2962
SH - EX	WT	-0.4068	0.1629	26	-2.4979	**0.0486**
EE - EX	WT	-0.1613	0.1646	26	-0.9798	0.5959
SH - EE	HD	-0.0750	0.1664	26	-0.4508	0.8945
SH - EX	HD	0.1311	0.1705	26	0.7692	0.7248
EE - EX	HD	0.2061	0.1705	26	1.2092	0.4585

6.1.6 Stance width forepaw

contrast	Housing	Sex	estimate	SE	df	t.ratio	p.value
WT - HD	SH	Female	0.1446	0.1380	26	1.0480	0.3043
WT - HD	EE	Female	0.0624	0.1382	26	0.4515	0.6554

(continued)

contrast	Housing	Sex	estimate	SE	df	t.ratio	p.value
WT - HD	EX	Female	0.0758	0.1414	26	0.5360	0.5965
WT - HD	SH	Male	0.3054	0.1380	26	2.2140	**0.0358**
WT - HD	EE	Male	0.2233	0.1393	26	1.6027	0.1211
WT - HD	EX	Male	0.2366	0.1414	26	1.6736	0.1062

6.1.7 Propel:brake ratio forepaw

contrast	Housing	Sex	estimate	SE	df	t.ratio	p.value
WT - HD	SH	Female	-0.8954	0.3743	26	-2.3923	**0.0243**
WT - HD	EE	Female	-0.9525	0.3751	26	-2.5391	**0.0174**
WT - HD	EX	Female	-0.3031	0.3863	26	-0.7847	0.4397
WT - HD	SH	Male	-0.9829	0.3743	26	-2.6261	**0.0143**
WT - HD	EE	Male	-1.0401	0.3789	26	-2.7449	**0.0108**
WT - HD	EX	Male	-0.3906	0.3863	26	-1.0112	0.3212

6.1.8 Butyrate

contrast	Housing	estimate	SE	df	t.ratio	p.value
Female - Male	SH	-45358.94	50238.70	14	-0.9029	0.3819
Female - Male	EE	26142.26	50238.70	14	0.5204	0.6109
Female - Male	EX	115746.88	51709.47	14	2.2384	**0.0420**

6.1.9 Valerate

contrast	Housing	estimate	SE	df	t.ratio	p.value
Female - Male	SH	-2055.847	3354.713	14	-0.6128	0.5498
Female - Male	EE	-2034.679	3354.713	14	-0.6065	0.5539
Female - Male	EX	9981.096	3498.810	14	2.8527	**0.0128**

6.1.10 Water Intake

contrast	Week	estimate	SE	df	t.ratio	p.value
WT SH Female - HD SH Female	6	-0.5625	0.1511	26	-3.7231	**0.0362**
WT SH Female - WT EE Female	6	0.1882	0.1656	26	1.1366	0.9896
WT SH Female - HD EE Female	6	-0.2739	0.1914	26	-1.4313	0.9460
WT SH Female - WT EX Female	6	0.0477	0.1656	26	0.2882	1.0000
WT SH Female - HD EX Female	6	-0.3291	0.1914	26	-1.7196	0.8437
WT SH Female - WT SH Male	6	0.1092	0.1511	26	0.7229	0.9998
WT SH Female - HD SH Male	6	-0.1407	0.1912	26	-0.7355	0.9998
WT SH Female - WT EE Male	6	0.0003	0.1914	26	0.0018	1.0000
WT SH Female - HD EE Male	6	-0.1492	0.1917	26	-0.7783	0.9996
WT SH Female - WT EX Male	6	-0.1229	0.1914	26	-0.6422	0.9999

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT SH Female - HD EX Male	6	-0.1871	0.1917	26	-0.9761	0.9970
HD SH Female - WT EE Female	6	0.7508	0.1914	26	3.9226	**0.0229**
HD SH Female - HD EE Female	6	0.2886	0.1656	26	1.7425	0.8328
HD SH Female - WT EX Female	6	0.6103	0.1914	26	3.1885	0.1141
HD SH Female - HD EX Female	6	0.2334	0.1656	26	1.4093	0.9511
HD SH Female - WT SH Male	6	0.6718	0.1912	26	3.5126	0.0578
HD SH Female - HD SH Male	6	0.4219	0.1511	26	2.7921	0.2398
HD SH Female - WT EE Male	6	0.5629	0.1917	26	2.9362	0.1855
HD SH Female - HD EE Male	6	0.4133	0.1914	26	2.1596	0.5892
HD SH Female - WT EX Male	6	0.4396	0.1917	26	2.2933	0.5047
HD SH Female - HD EX Male	6	0.3754	0.1914	26	1.9615	0.7129
WT EE Female - HD EE Female	6	-0.4622	0.1511	26	-3.0589	0.1473
WT EE Female - WT EX Female	6	-0.1405	0.1656	26	-0.8484	0.9991
WT EE Female - HD EX Female	6	-0.5174	0.1914	26	-2.7031	0.2787
WT EE Female - WT SH Male	6	-0.0790	0.1914	26	-0.4128	1.0000
WT EE Female - HD SH Male	6	-0.3289	0.1917	26	-1.7157	0.8454
WT EE Female - WT EE Male	6	-0.1879	0.1511	26	-1.2436	0.9795
WT EE Female - HD EE Male	6	-0.3374	0.1912	26	-1.7644	0.8220
WT EE Female - WT EX Male	6	-0.3111	0.1914	26	-1.6257	0.8841
WT EE Female - HD EX Male	6	-0.3754	0.1917	26	-1.9580	0.7150
HD EE Female - WT EX Female	6	0.3217	0.1914	26	1.6807	0.8612
HD EE Female - HD EX Female	6	-0.0552	0.1656	26	-0.3331	1.0000
HD EE Female - WT SH Male	6	0.3832	0.1917	26	1.9988	0.6903
HD EE Female - HD SH Male	6	0.1333	0.1914	26	0.6964	0.9999
HD EE Female - WT EE Male	6	0.2743	0.1912	26	1.4342	0.9453
HD EE Female - HD EE Male	6	0.1247	0.1511	26	0.8256	0.9993
HD EE Female - WT EX Male	6	0.1510	0.1917	26	0.7878	0.9996
HD EE Female - HD EX Male	6	0.0868	0.1914	26	0.4536	1.0000
WT EX Female - HD EX Female	6	-0.3768	0.1511	26	-2.4941	0.3853
WT EX Female - WT SH Male	6	0.0615	0.1914	26	0.3213	1.0000
WT EX Female - HD SH Male	6	-0.1884	0.1917	26	-0.9827	0.9968
WT EX Female - WT EE Male	6	-0.0474	0.1914	26	-0.2476	1.0000
WT EX Female - HD EE Male	6	-0.1969	0.1917	26	-1.0273	0.9954
WT EX Female - WT EX Male	6	-0.1706	0.1511	26	-1.1294	0.9901
WT EX Female - HD EX Male	6	-0.2348	0.1912	26	-1.2280	0.9813
HD EX Female - WT SH Male	6	0.4383	0.1917	26	2.2866	0.5088
HD EX Female - HD SH Male	6	0.1885	0.1914	26	0.9846	0.9968
HD EX Female - WT EE Male	6	0.3295	0.1917	26	1.7186	0.8441
HD EX Female - HD EE Male	6	0.1799	0.1914	26	0.9400	0.9978
HD EX Female - WT EX Male	6	0.2062	0.1912	26	1.0782	0.9932
HD EX Female - HD EX Male	6	0.1420	0.1511	26	0.9398	0.9978
WT SH Male - HD SH Male	6	-0.2499	0.1511	26	-1.6539	0.8727
WT SH Male - WT EE Male	6	-0.1089	0.1656	26	-0.6575	0.9999
WT SH Male - HD EE Male	6	-0.2584	0.1914	26	-1.3502	0.9633
WT SH Male - WT EX Male	6	-0.2321	0.1656	26	-1.4016	0.9529
WT SH Male - HD EX Male	6	-0.2963	0.1914	26	-1.5483	0.9123
HD SH Male - WT EE Male	6	0.1410	0.1914	26	0.7367	0.9998
HD SH Male - HD EE Male	6	-0.0085	0.1656	26	-0.0515	1.0000
HD SH Male - WT EX Male	6	0.0178	0.1914	26	0.0927	1.0000
HD SH Male - HD EX Male	6	-0.0465	0.1656	26	-0.2805	1.0000
WT EE Male - HD EE Male	6	-0.1495	0.1511	26	-0.9897	0.9966

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT EE Male - WT EX Male	6	-0.1233	0.1656	26	-0.7442	0.9997
WT EE Male - HD EX Male	6	-0.1875	0.1914	26	-0.9794	0.9969
HD EE Male - WT EX Male	6	0.0263	0.1914	26	0.1373	1.0000
HD EE Male - HD EX Male	6	-0.0379	0.1656	26	-0.2289	1.0000
WT EX Male - HD EX Male	6	-0.0642	0.1511	26	-0.4249	1.0000
WT SH Female - HD SH Female	7	-0.6286	0.1409	26	-4.4622	**0.0062**
WT SH Female - WT EE Female	7	0.1146	0.1515	26	0.7564	0.9997
WT SH Female - HD EE Female	7	-0.4137	0.1708	26	-2.4218	0.4267
WT SH Female - WT EX Female	7	-0.0772	0.1515	26	-0.5096	1.0000
WT SH Female - HD EX Female	7	-0.5202	0.1708	26	-3.0453	0.1512
WT SH Female - WT SH Male	7	0.1929	0.1409	26	1.3690	0.9597
WT SH Female - HD SH Male	7	-0.1231	0.1750	26	-0.7038	0.9998
WT SH Female - WT EE Male	7	0.0104	0.1708	26	0.0606	1.0000
WT SH Female - HD EE Male	7	-0.2053	0.1622	26	-1.2656	0.9767
WT SH Female - WT EX Male	7	-0.1642	0.1708	26	-0.9614	0.9974
WT SH Female - HD EX Male	7	-0.2945	0.1622	26	-1.8158	0.7957
HD SH Female - WT EE Female	7	0.7432	0.1708	26	4.3512	**0.0082**
HD SH Female - HD EE Female	7	0.2150	0.1515	26	1.4187	0.9490
HD SH Female - WT EX Female	7	0.5514	0.1708	26	3.2282	0.1053
HD SH Female - HD EX Female	7	0.1085	0.1515	26	0.7159	0.9998
HD SH Female - WT SH Male	7	0.8215	0.1750	26	4.6955	**0.0035**
HD SH Female - HD SH Male	7	0.5055	0.1409	26	3.5882	**0.0490**
HD SH Female - WT EE Male	7	0.6390	0.1622	26	3.9393	**0.0220**
HD SH Female - HD EE Male	7	0.4233	0.1708	26	2.4784	0.3941
HD SH Female - WT EX Male	7	0.4644	0.1622	26	2.8631	0.2118
HD SH Female - HD EX Male	7	0.3341	0.1708	26	1.9559	0.7163
WT EE Female - HD EE Female	7	-0.5283	0.1409	26	-3.7499	**0.0341**
WT EE Female - WT EX Female	7	-0.1918	0.1515	26	-1.2661	0.9766
WT EE Female - HD EX Female	7	-0.6348	0.1708	26	-3.7162	**0.0368**
WT EE Female - WT SH Male	7	0.0783	0.1708	26	0.4581	1.0000
WT EE Female - HD SH Male	7	-0.2377	0.1622	26	-1.4657	0.9372
WT EE Female - WT EE Male	7	-0.1043	0.1409	26	-0.7401	0.9998
WT EE Female - HD EE Male	7	-0.3199	0.1750	26	-1.8285	0.7889
WT EE Female - WT EX Male	7	-0.2788	0.1708	26	-1.6324	0.8814
WT EE Female - HD EX Male	7	-0.4091	0.1622	26	-2.5223	0.3697
HD EE Female - WT EX Female	7	0.3365	0.1708	26	1.9697	0.7080
HD EE Female - HD EX Female	7	-0.1065	0.1515	26	-0.7029	0.9998
HD EE Female - WT SH Male	7	0.6065	0.1622	26	3.7392	**0.0349**
HD EE Female - HD SH Male	7	0.2905	0.1708	26	1.7009	0.8522
HD EE Female - WT EE Male	7	0.4240	0.1750	26	2.4236	0.4257
HD EE Female - HD EE Male	7	0.2084	0.1409	26	1.4791	0.9335
HD EE Female - WT EX Male	7	0.2495	0.1622	26	1.5378	0.9158
HD EE Female - HD EX Male	7	0.1191	0.1708	26	0.6975	0.9999
WT EX Female - HD EX Female	7	-0.4430	0.1409	26	-3.1442	0.1247
WT EX Female - WT SH Male	7	0.2701	0.1708	26	1.5812	0.9009
WT EX Female - HD SH Male	7	-0.0459	0.1622	26	-0.2831	1.0000
WT EX Female - WT EE Male	7	0.0876	0.1708	26	0.5127	1.0000
WT EX Female - HD EE Male	7	-0.1281	0.1622	26	-0.7896	0.9995
WT EX Female - WT EX Male	7	-0.0870	0.1409	26	-0.6176	1.0000
WT EX Female - HD EX Male	7	-0.2173	0.1750	26	-1.2421	0.9796
HD EX Female - WT SH Male	7	0.7130	0.1622	26	4.3958	**0.0074**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
HD EX Female - HD SH Male	7	0.3970	0.1708	26	2.3244	0.4854
HD EX Female - WT EE Male	7	0.5305	0.1622	26	3.2706	0.0966
HD EX Female - HD EE Male	7	0.3149	0.1708	26	1.8434	0.7808
HD EX Female - WT EX Male	7	0.3559	0.1750	26	2.0345	0.6682
HD EX Female - HD EX Male	7	0.2256	0.1409	26	1.6016	0.8934
WT SH Male - HD SH Male	7	-0.3160	0.1409	26	-2.2430	0.5362
WT SH Male - WT EE Male	7	-0.1825	0.1515	26	-1.2046	0.9838
WT SH Male - HD EE Male	7	-0.3982	0.1708	26	-2.3310	0.4813
WT SH Male - WT EX Male	7	-0.3571	0.1515	26	-2.3568	0.4656
WT SH Male - HD EX Male	7	-0.4874	0.1708	26	-2.8534	0.2155
HD SH Male - WT EE Male	7	0.1335	0.1708	26	0.7815	0.9996
HD SH Male - HD EE Male	7	-0.0822	0.1515	26	-0.5423	1.0000
HD SH Male - WT EX Male	7	-0.0411	0.1708	26	-0.2406	1.0000
HD SH Male - HD EX Male	7	-0.1714	0.1515	26	-1.1312	0.9900
WT EE Male - HD EE Male	7	-0.2156	0.1409	26	-1.5307	0.9181
WT EE Male - WT EX Male	7	-0.1746	0.1515	26	-1.1522	0.9884
WT EE Male - HD EX Male	7	-0.3049	0.1708	26	-1.7849	0.8117
HD EE Male - WT EX Male	7	0.0411	0.1708	26	0.2405	1.0000
HD EE Male - HD EX Male	7	-0.0892	0.1515	26	-0.5890	1.0000
WT EX Male - HD EX Male	7	-0.1303	0.1409	26	-0.9250	0.9981
WT SH Female - HD SH Female	8	-0.6947	0.1355	26	-5.1278	**0.0012**
WT SH Female - WT EE Female	8	0.0410	0.1439	26	0.2847	1.0000
WT SH Female - HD EE Female	8	-0.5534	0.1595	26	-3.4690	0.0636
WT SH Female - WT EX Female	8	-0.2022	0.1439	26	-1.4044	0.9522
WT SH Female - HD EX Female	8	-0.7112	0.1595	26	-4.4583	**0.0063**
WT SH Female - WT SH Male	8	0.2765	0.1355	26	2.0408	0.6643
WT SH Female - HD SH Male	8	-0.1056	0.1662	26	-0.6354	0.9999
WT SH Female - WT EE Male	8	0.0204	0.1595	26	0.1276	1.0000
WT SH Female - HD EE Male	8	-0.2614	0.1452	26	-1.7998	0.8041
WT SH Female - WT EX Male	8	-0.2055	0.1595	26	-1.2884	0.9735
WT SH Female - HD EX Male	8	-0.4020	0.1452	26	-2.7676	0.2501
HD SH Female - WT EE Female	8	0.7357	0.1595	26	4.6119	**0.0043**
HD SH Female - HD EE Female	8	0.1413	0.1439	26	0.9819	0.9968
HD SH Female - WT EX Female	8	0.4926	0.1595	26	3.0877	0.1393
HD SH Female - HD EX Female	8	-0.0165	0.1439	26	-0.1145	1.0000
HD SH Female - WT SH Male	8	0.9712	0.1662	26	5.8433	**0.0002**
HD SH Female - HD SH Male	8	0.5891	0.1355	26	4.3483	**0.0083**
HD SH Female - WT EE Male	8	0.7151	0.1452	26	4.9237	**0.0020**
HD SH Female - HD EE Male	8	0.4334	0.1595	26	2.7164	0.2726
HD SH Female - WT EX Male	8	0.4892	0.1452	26	3.3684	0.0788
HD SH Female - HD EX Male	8	0.2928	0.1595	26	1.8353	0.7852
WT EE Female - HD EE Female	8	-0.5944	0.1355	26	-4.3871	**0.0075**
WT EE Female - WT EX Female	8	-0.2432	0.1439	26	-1.6892	0.8575
WT EE Female - HD EX Female	8	-0.7522	0.1595	26	-4.7152	**0.0033**
WT EE Female - WT SH Male	8	0.2355	0.1595	26	1.4763	0.9343
WT EE Female - HD SH Male	8	-0.1466	0.1452	26	-1.0093	0.9960
WT EE Female - WT EE Male	8	-0.0206	0.1355	26	-0.1522	1.0000
WT EE Female - HD EE Male	8	-0.3024	0.1662	26	-1.8192	0.7939
WT EE Female - WT EX Male	8	-0.2465	0.1595	26	-1.5453	0.9133
WT EE Female - HD EX Male	8	-0.4429	0.1452	26	-3.0498	0.1499
HD EE Female - WT EX Female	8	0.3512	0.1595	26	2.2017	0.5624

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
HD EE Female - HD EX Female	8	-0.1578	0.1439	26	-1.0964	0.9922
HD EE Female - WT SH Male	8	0.8299	0.1452	26	5.7142	**0.0003**
HD EE Female - HD SH Male	8	0.4478	0.1595	26	2.8070	0.2337
HD EE Female - WT EE Male	8	0.5738	0.1662	26	3.4519	0.0659
HD EE Female - HD EE Male	8	0.2920	0.1355	26	2.1553	0.5919
HD EE Female - WT EX Male	8	0.3479	0.1452	26	2.3952	0.4424
HD EE Female - HD EX Male	8	0.1515	0.1595	26	0.9494	0.9976
WT EX Female - HD EX Female	8	-0.5091	0.1355	26	-3.7573	**0.0335**
WT EX Female - WT SH Male	8	0.4787	0.1595	26	3.0005	0.1646
WT EX Female - HD SH Male	8	0.0966	0.1452	26	0.6648	0.9999
WT EX Female - WT EE Male	8	0.2225	0.1595	26	1.3949	0.9543
WT EX Female - HD EE Male	8	-0.0592	0.1452	26	-0.4078	1.0000
WT EX Female - WT EX Male	8	-0.0034	0.1355	26	-0.0249	1.0000
WT EX Female - HD EX Male	8	-0.1998	0.1662	26	-1.2020	0.9840
HD EX Female - WT SH Male	8	0.9877	0.1452	26	6.8008	**0.0000**
HD EX Female - HD SH Male	8	0.6056	0.1595	26	3.7963	**0.0306**
HD EX Female - WT EE Male	8	0.7316	0.1452	26	5.0372	**0.0015**
HD EX Female - HD EE Male	8	0.4498	0.1595	26	2.8197	0.2286
HD EX Female - WT EX Male	8	0.5057	0.1662	26	3.0424	0.1520
HD EX Female - HD EX Male	8	0.3093	0.1355	26	2.2827	0.5113
WT SH Male - HD SH Male	8	-0.3821	0.1355	26	-2.8203	0.2284
WT SH Male - WT EE Male	8	-0.2561	0.1439	26	-1.7794	0.8145
WT SH Male - HD EE Male	8	-0.5379	0.1595	26	-3.3718	0.0782
WT SH Male - WT EX Male	8	-0.4820	0.1439	26	-3.3487	0.0821
WT SH Male - HD EX Male	8	-0.6785	0.1595	26	-4.2529	**0.0104**
HD SH Male - WT EE Male	8	0.1260	0.1595	26	0.7896	0.9995
HD SH Male - HD EE Male	8	-0.1558	0.1439	26	-1.0823	0.9929
HD SH Male - WT EX Male	8	-0.0999	0.1595	26	-0.6264	1.0000
HD SH Male - HD EX Male	8	-0.2964	0.1439	26	-2.0587	0.6531
WT EE Male - HD EE Male	8	-0.2818	0.1355	26	-2.0796	0.6400
WT EE Male - WT EX Male	8	-0.2259	0.1439	26	-1.5693	0.9051
WT EE Male - HD EX Male	8	-0.4223	0.1595	26	-2.6473	0.3051
HD EE Male - WT EX Male	8	0.0559	0.1595	26	0.3502	1.0000
HD EE Male - HD EX Male	8	-0.1406	0.1439	26	-0.9765	0.9970
WT EX Male - HD EX Male	8	-0.1964	0.1355	26	-1.4498	0.9414
WT SH Female - HD SH Female	9	-0.7609	0.1355	26	-5.6157	**0.0003**
WT SH Female - WT EE Female	9	-0.0326	0.1439	26	-0.2268	1.0000
WT SH Female - HD EE Female	9	-0.6931	0.1595	26	-4.3449	**0.0083**
WT SH Female - WT EX Female	9	-0.3271	0.1439	26	-2.2725	0.5177
WT SH Female - HD EX Female	9	-0.9023	0.1595	26	-5.6559	**0.0003**
WT SH Female - WT SH Male	9	0.3601	0.1355	26	2.6581	0.2998
WT SH Female - HD SH Male	9	-0.0881	0.1662	26	-0.5299	1.0000
WT SH Female - WT EE Male	9	0.0304	0.1595	26	0.1904	1.0000
WT SH Female - HD EE Male	9	-0.3175	0.1452	26	-2.1860	0.5723
WT SH Female - WT EX Male	9	-0.2468	0.1595	26	-1.5473	0.9126
WT SH Female - HD EX Male	9	-0.5094	0.1452	26	-3.5072	0.0585
HD SH Female - WT EE Female	9	0.7282	0.1595	26	4.5647	**0.0049**
HD SH Female - HD EE Female	9	0.0677	0.1439	26	0.4704	1.0000
HD SH Female - WT EX Female	9	0.4337	0.1595	26	2.7189	0.2715
HD SH Female - HD EX Female	9	-0.1414	0.1439	26	-0.9825	0.9968
HD SH Female - WT SH Male	9	1.1210	0.1662	26	6.7442	**0.0000**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
HD SH Female - HD SH Male	9	0.6728	0.1355	26	4.9657	**0.0018**
HD SH Female - WT EE Male	9	0.7912	0.1452	26	5.4478	**0.0005**
HD SH Female - HD EE Male	9	0.4434	0.1595	26	2.7792	0.2452
HD SH Female - WT EX Male	9	0.5140	0.1452	26	3.5391	0.0546
HD SH Female - HD EX Male	9	0.2515	0.1595	26	1.5764	0.9026
WT EE Female - HD EE Female	9	-0.6605	0.1355	26	-4.8751	**0.0022**
WT EE Female - WT EX Female	9	-0.2945	0.1439	26	-2.0457	0.6613
WT EE Female - HD EX Female	9	-0.8696	0.1595	26	-5.4513	**0.0005**
WT EE Female - WT SH Male	9	0.3928	0.1595	26	2.4621	0.4034
WT EE Female - HD SH Male	9	-0.0554	0.1452	26	-0.3817	1.0000
WT EE Female - WT EE Male	9	0.0630	0.1355	26	0.4651	1.0000
WT EE Female - HD EE Male	9	-0.2849	0.1662	26	-1.7137	0.8464
WT EE Female - WT EX Male	9	-0.2142	0.1595	26	-1.3427	0.9647
WT EE Female - HD EX Male	9	-0.4767	0.1452	26	-3.2825	0.0943
HD EE Female - WT EX Female	9	0.3660	0.1595	26	2.2944	0.5039
HD EE Female - HD EX Female	9	-0.2091	0.1439	26	-1.4529	0.9406
HD EE Female - WT SH Male	9	1.0533	0.1452	26	7.2522	**0.0000**
HD EE Female - HD SH Male	9	0.6051	0.1595	26	3.7928	**0.0309**
HD EE Female - WT EE Male	9	0.7235	0.1662	26	4.3528	**0.0082**
HD EE Female - HD EE Male	9	0.3757	0.1355	26	2.7726	0.2480
HD EE Female - WT EX Male	9	0.4463	0.1452	26	3.0729	0.1434
HD EE Female - HD EX Male	9	0.1838	0.1595	26	1.1519	0.9885
WT EX Female - HD EX Female	9	-0.5752	0.1355	26	-4.2452	**0.0106**
WT EX Female - WT SH Male	9	0.6872	0.1595	26	4.3080	**0.0091**
WT EX Female - HD SH Male	9	0.2390	0.1452	26	1.6458	0.8760
WT EX Female - WT EE Male	9	0.3575	0.1595	26	2.2409	0.5376
WT EX Female - HD EE Male	9	0.0096	0.1452	26	0.0662	1.0000
WT EX Female - WT EX Male	9	0.0803	0.1355	26	0.5924	1.0000
WT EX Female - HD EX Male	9	-0.1823	0.1662	26	-1.0965	0.9922
HD EX Female - WT SH Male	9	1.2624	0.1452	26	8.6922	**0.0000**
HD EX Female - HD SH Male	9	0.8142	0.1595	26	5.1038	**0.0013**
HD EX Female - WT EE Male	9	0.9327	0.1452	26	6.4216	**0.0000**
HD EX Female - HD EE Male	9	0.5848	0.1595	26	3.6657	**0.0412**
HD EX Female - WT EX Male	9	0.6554	0.1662	26	3.9433	**0.0218**
HD EX Female - HD EX Male	9	0.3929	0.1355	26	2.9000	0.1982
WT SH Male - HD SH Male	9	-0.4482	0.1355	26	-3.3082	0.0894
WT SH Male - WT EE Male	9	-0.3298	0.1439	26	-2.2909	0.5062
WT SH Male - HD EE Male	9	-0.6776	0.1595	26	-4.2477	**0.0105**
WT SH Male - WT EX Male	9	-0.6070	0.1439	26	-4.2167	**0.0114**
WT SH Male - HD EX Male	9	-0.8695	0.1595	26	-5.4505	**0.0005**
HD SH Male - WT EE Male	9	0.1184	0.1595	26	0.7425	0.9997
HD SH Male - HD EE Male	9	-0.2294	0.1439	26	-1.5937	0.8963
HD SH Male - WT EX Male	9	-0.1588	0.1595	26	-0.9952	0.9965
HD SH Male - HD EX Male	9	-0.4213	0.1439	26	-2.9268	0.1888
WT EE Male - HD EE Male	9	-0.3479	0.1355	26	-2.5675	0.3455
WT EE Male - WT EX Male	9	-0.2772	0.1439	26	-1.9258	0.7341
WT EE Male - HD EX Male	9	-0.5397	0.1595	26	-3.3834	0.0763
HD EE Male - WT EX Male	9	0.0706	0.1595	26	0.4428	1.0000
HD EE Male - HD EX Male	9	-0.1919	0.1439	26	-1.3330	0.9664
WT EX Male - HD EX Male	9	-0.2625	0.1355	26	-1.9377	0.7271
WT SH Female - HD SH Female	10	-0.8270	0.1409	26	-5.8699	**0.0002**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT SH Female - WT EE Female	10	-0.1063	0.1515	26	-0.7014	0.9999
WT SH Female - HD EE Female	10	-0.8329	0.1708	26	-4.8760	**0.0022**
WT SH Female - WT EX Female	10	-0.4521	0.1515	26	-2.9836	0.1699
WT SH Female - HD EX Female	10	-1.0933	0.1708	26	-6.4008	**0.0000**
WT SH Female - WT SH Male	10	0.4438	0.1409	26	3.1500	0.1233
WT SH Female - HD SH Male	10	-0.0706	0.1750	26	-0.4032	1.0000
WT SH Female - WT EE Male	10	0.0404	0.1708	26	0.2364	1.0000
WT SH Female - HD EE Male	10	-0.3736	0.1622	26	-2.3031	0.4985
WT SH Female - WT EX Male	10	-0.2882	0.1708	26	-1.6870	0.8584
WT SH Female - HD EX Male	10	-0.6168	0.1622	26	-3.8025	**0.0302**
HD SH Female - WT EE Female	10	0.7207	0.1708	26	4.2192	**0.0113**
HD SH Female - HD EE Female	10	-0.0059	0.1515	26	-0.0390	1.0000
HD SH Female - WT EX Female	10	0.3749	0.1708	26	2.1948	0.5668
HD SH Female - HD EX Female	10	-0.2664	0.1515	26	-1.7581	0.8252
HD SH Female - WT SH Male	10	1.2707	0.1750	26	7.2632	**0.0000**
HD SH Female - HD SH Male	10	0.7564	0.1409	26	5.3692	**0.0006**
HD SH Female - WT EE Male	10	0.8673	0.1622	26	5.3470	**0.0007**
HD SH Female - HD EE Male	10	0.4534	0.1708	26	2.6542	0.3017
HD SH Female - WT EX Male	10	0.5388	0.1622	26	3.3217	0.0869
HD SH Female - HD EX Male	10	0.2102	0.1708	26	1.2304	0.9810
WT EE Female - HD EE Female	10	-0.7266	0.1409	26	-5.1576	**0.0011**
WT EE Female - WT EX Female	10	-0.3458	0.1515	26	-2.2822	0.5116
WT EE Female - HD EX Female	10	-0.9871	0.1708	26	-5.7787	**0.0002**
WT EE Female - WT SH Male	10	0.5500	0.1708	26	3.2201	0.1071
WT EE Female - HD SH Male	10	0.0357	0.1622	26	0.2202	1.0000
WT EE Female - WT EE Male	10	0.1466	0.1409	26	1.0409	0.9949
WT EE Female - HD EE Male	10	-0.2673	0.1750	26	-1.5280	0.9189
WT EE Female - WT EX Male	10	-0.1819	0.1708	26	-1.0649	0.9938
WT EE Female - HD EX Male	10	-0.5105	0.1622	26	-3.1473	0.1239
HD EE Female - WT EX Female	10	0.3808	0.1708	26	2.2294	0.5448
HD EE Female - HD EX Female	10	-0.2605	0.1515	26	-1.7190	0.8439
HD EE Female - WT SH Male	10	1.2767	0.1622	26	7.8704	**0.0000**
HD EE Female - HD SH Male	10	0.7623	0.1708	26	4.4629	**0.0062**
HD EE Female - WT EE Male	10	0.8733	0.1750	26	4.9913	**0.0017**
HD EE Female - HD EE Male	10	0.4593	0.1409	26	3.2601	0.0987
HD EE Female - WT EX Male	10	0.5447	0.1622	26	3.3581	0.0805
HD EE Female - HD EX Male	10	0.2161	0.1708	26	1.2650	0.9768
WT EX Female - HD EX Female	10	-0.6413	0.1409	26	-4.5519	**0.0050**
WT EX Female - WT SH Male	10	0.8958	0.1708	26	5.2445	**0.0009**
WT EX Female - HD SH Male	10	0.3815	0.1622	26	2.3520	0.4685
WT EX Female - WT EE Male	10	0.4924	0.1708	26	2.8829	0.2044
WT EX Female - HD EE Male	10	0.0785	0.1622	26	0.4838	1.0000
WT EX Female - WT EX Male	10	0.1639	0.1409	26	1.1634	0.9875
WT EX Female - HD EX Male	10	-0.1647	0.1750	26	-0.9416	0.9978
HD EX Female - WT SH Male	10	1.5371	0.1622	26	9.4761	**0.0000**
HD EX Female - HD SH Male	10	1.0228	0.1708	26	5.9878	**0.0001**
HD EX Female - WT EE Male	10	1.1337	0.1622	26	6.9892	**0.0000**
HD EX Female - HD EE Male	10	0.7197	0.1708	26	4.2137	**0.0114**
HD EX Female - WT EX Male	10	0.8052	0.1750	26	4.6022	**0.0044**
HD EX Female - HD EX Male	10	0.4765	0.1409	26	3.3826	0.0765
WT SH Male - HD SH Male	10	-0.5143	0.1409	26	-3.6508	**0.0426**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT SH Male - WT EE Male	10	-0.4034	0.1515	26	-2.6624	0.2978
WT SH Male - HD EE Male	10	-0.8174	0.1708	26	-4.7851	**0.0028**
WT SH Male - WT EX Male	10	-0.7319	0.1515	26	-4.8307	**0.0025**
WT SH Male - HD EX Male	10	-1.0606	0.1708	26	-6.2089	**0.0001**
HD SH Male - WT EE Male	10	0.1109	0.1708	26	0.6494	0.9999
HD SH Male - HD EE Male	10	-0.3030	0.1515	26	-2.0001	0.6895
HD SH Male - WT EX Male	10	-0.2176	0.1708	26	-1.2740	0.9756
HD SH Male - HD EX Male	10	-0.5462	0.1515	26	-3.6052	**0.0472**
WT EE Male - HD EE Male	10	-0.4140	0.1409	26	-2.9385	0.1848
WT EE Male - WT EX Male	10	-0.3285	0.1515	26	-2.1683	0.5836
WT EE Male - HD EX Male	10	-0.6572	0.1708	26	-3.8473	**0.0272**
HD EE Male - WT EX Male	10	0.0854	0.1708	26	0.5002	1.0000
HD EE Male - HD EX Male	10	-0.2432	0.1515	26	-1.6051	0.8921
WT EX Male - HD EX Male	10	-0.3286	0.1409	26	-2.3327	0.4802
WT SH Female - HD SH Female	11	-0.8931	0.1511	26	-5.9107	**0.0002**
WT SH Female - WT EE Female	11	-0.1799	0.1656	26	-1.0862	0.9927
WT SH Female - HD EE Female	11	-0.9726	0.1914	26	-5.0817	**0.0013**
WT SH Female - WT EX Female	11	-0.5770	0.1656	26	-3.4839	0.0615
WT SH Female - HD EX Female	11	-1.2844	0.1914	26	-6.7107	**0.0000**
WT SH Female - WT SH Male	11	0.5274	0.1511	26	3.4906	0.0607
WT SH Female - HD SH Male	11	-0.0530	0.1912	26	-0.2773	1.0000
WT SH Female - WT EE Male	11	0.0504	0.1914	26	0.2633	1.0000
WT SH Female - HD EE Male	11	-0.4297	0.1917	26	-2.2415	0.5372
WT SH Female - WT EX Male	11	-0.3295	0.1914	26	-1.7214	0.8428
WT SH Female - HD EX Male	11	-0.7242	0.1917	26	-3.7779	**0.0319**
HD SH Female - WT EE Female	11	0.7132	0.1914	26	3.7262	**0.0359**
HD SH Female - HD EE Female	11	-0.0795	0.1656	26	-0.4803	1.0000
HD SH Female - WT EX Female	11	0.3161	0.1914	26	1.6514	0.8737
HD SH Female - HD EX Female	11	-0.3913	0.1656	26	-2.3628	0.4619
HD SH Female - WT SH Male	11	1.4205	0.1912	26	7.4276	**0.0000**
HD SH Female - HD SH Male	11	0.8400	0.1511	26	5.5598	**0.0004**
HD SH Female - WT EE Male	11	0.9435	0.1917	26	4.9216	**0.0020**
HD SH Female - HD EE Male	11	0.4634	0.1914	26	2.4211	0.4271
HD SH Female - WT EX Male	11	0.5636	0.1917	26	2.9400	0.1842
HD SH Female - HD EX Male	11	0.1689	0.1914	26	0.8822	0.9988
WT EE Female - HD EE Female	11	-0.7927	0.1511	26	-5.2465	**0.0009**
WT EE Female - WT EX Female	11	-0.3971	0.1656	26	-2.3977	0.4409
WT EE Female - HD EX Female	11	-1.1045	0.1914	26	-5.7708	**0.0002**
WT EE Female - WT SH Male	11	0.7073	0.1914	26	3.6955	**0.0385**
WT EE Female - HD SH Male	11	0.1269	0.1917	26	0.6618	0.9999
WT EE Female - WT EE Male	11	0.2303	0.1511	26	1.5241	0.9202
WT EE Female - HD EE Male	11	-0.2498	0.1912	26	-1.3062	0.9708
WT EE Female - WT EX Male	11	-0.1496	0.1914	26	-0.7815	0.9996
WT EE Female - HD EX Male	11	-0.5443	0.1917	26	-2.8395	0.2208
HD EE Female - WT EX Female	11	0.3956	0.1914	26	2.0670	0.6479
HD EE Female - HD EX Female	11	-0.3118	0.1656	26	-1.8825	0.7591
HD EE Female - WT SH Male	11	1.5000	0.1917	26	7.8249	**0.0000**
HD EE Female - HD SH Male	11	0.9196	0.1914	26	4.8047	**0.0027**
HD EE Female - WT EE Male	11	1.0230	0.1912	26	5.3493	**0.0007**
HD EE Female - HD EE Male	11	0.5429	0.1511	26	3.5933	**0.0484**
HD EE Female - WT EX Male	11	0.6431	0.1917	26	3.3550	0.0810

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
HD EE Female - HD EX Male	11	0.2484	0.1914	26	1.2978	0.9721
WT EX Female - HD EX Female	11	-0.7074	0.1511	26	-4.6818	**0.0036**
WT EX Female - WT SH Male	11	1.1044	0.1914	26	5.7704	**0.0002**
WT EX Female - HD SH Male	11	0.5240	0.1917	26	2.7334	0.2650
WT EX Female - WT EE Male	11	0.6274	0.1914	26	3.2780	0.0951
WT EX Female - HD EE Male	11	0.1473	0.1917	26	0.7685	0.9996
WT EX Female - WT EX Male	11	0.2475	0.1511	26	1.6383	0.8791
WT EX Female - HD EX Male	11	-0.1472	0.1912	26	-0.7697	0.9996
HD EX Female - WT SH Male	11	1.8118	0.1917	26	9.4513	**0.0000**
HD EX Female - HD SH Male	11	1.2314	0.1914	26	6.4337	**0.0000**
HD EX Female - WT EE Male	11	1.3348	0.1917	26	6.9629	**0.0000**
HD EX Female - HD EE Male	11	0.8547	0.1914	26	4.4657	**0.0062**
HD EX Female - WT EX Male	11	0.9549	0.1912	26	4.9933	**0.0017**
HD EX Female - HD EX Male	11	0.5602	0.1511	26	3.7075	**0.0375**
WT SH Male - HD SH Male	11	-0.5804	0.1511	26	-3.8415	**0.0276**
WT SH Male - WT EE Male	11	-0.4770	0.1656	26	-2.8802	0.2054
WT SH Male - HD EE Male	11	-0.9571	0.1914	26	-5.0007	**0.0016**
WT SH Male - WT EX Male	11	-0.8569	0.1656	26	-5.1737	**0.0011**
WT SH Male - HD EX Male	11	-1.2516	0.1914	26	-6.5395	**0.0000**
HD SH Male - WT EE Male	11	0.1034	0.1914	26	0.5403	1.0000
HD SH Male - HD EE Male	11	-0.3767	0.1656	26	-2.2743	0.5165
HD SH Male - WT EX Male	11	-0.2764	0.1914	26	-1.4444	0.9427
HD SH Male - HD EX Male	11	-0.6712	0.1656	26	-4.0526	**0.0168**
WT EE Male - HD EE Male	11	-0.4801	0.1511	26	-3.1774	0.1167
WT EE Male - WT EX Male	11	-0.3799	0.1656	26	-2.2936	0.5045
WT EE Male - HD EX Male	11	-0.7746	0.1914	26	-4.0472	**0.0170**
HD EE Male - WT EX Male	11	0.1002	0.1914	26	0.5236	1.0000
HD EE Male - HD EX Male	11	-0.2945	0.1656	26	-1.7783	0.8151
WT EX Male - HD EX Male	11	-0.3947	0.1511	26	-2.6126	0.3223

6.1.11 Weight

contrast	Week	estimate	SE	df	t.ratio	p.value
WT SH Female - HD SH Female	6	0.4624	0.9505	26	0.4865	1.0000
WT SH Female - WT EE Female	6	0.5490	1.0123	26	0.5424	1.0000
WT SH Female - HD EE Female	6	-0.2787	1.1293	26	-0.2468	1.0000
WT SH Female - WT EX Female	6	-0.0493	1.0130	26	-0.0487	1.0000
WT SH Female - HD EX Female	6	-0.7408	1.1297	26	-0.6557	0.9999
WT SH Female - WT SH Male	6	-6.9333	0.9498	26	-7.3000	**0.0000**
WT SH Female - HD SH Male	6	-6.7631	1.1684	26	-5.7883	**0.0002**
WT SH Female - WT EE Male	6	-5.0912	1.1278	26	-4.5143	**0.0055**
WT SH Female - HD EE Male	6	-6.2111	1.0403	26	-5.9703	**0.0001**
WT SH Female - WT EX Male	6	-5.1586	1.1303	26	-4.5641	**0.0049**
WT SH Female - HD EX Male	6	-6.1422	1.0427	26	-5.8909	**0.0002**
HD SH Female - WT EE Female	6	0.0866	1.1293	26	0.0767	1.0000
HD SH Female - HD EE Female	6	-0.7411	1.0143	26	-0.7306	0.9998
HD SH Female - WT EX Female	6	-0.5118	1.1297	26	-0.4530	1.0000
HD SH Female - HD EX Female	6	-1.2032	1.0151	26	-1.1854	0.9856
HD SH Female - WT SH Male	6	-7.3957	1.1713	26	-6.3143	**0.0001**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
HD SH Female - HD SH Male	6	-7.2255	0.9505	26	-7.6018	**0.0000**
HD SH Female - WT EE Male	6	-5.5536	1.0426	26	-5.3269	**0.0007**
HD SH Female - HD EE Male	6	-6.6735	1.1293	26	-5.9092	**0.0002**
HD SH Female - WT EX Male	6	-5.6210	1.0449	26	-5.3796	**0.0006**
HD SH Female - HD EX Male	6	-6.6046	1.1318	26	-5.8356	**0.0002**
WT EE Female - HD EE Female	6	-0.8277	0.9505	26	-0.8708	0.9989
WT EE Female - WT EX Female	6	-0.5983	1.0130	26	-0.5907	1.0000
WT EE Female - HD EX Female	6	-1.2898	1.1297	26	-1.1417	0.9892
WT EE Female - WT SH Male	6	-7.4823	1.1278	26	-6.6344	**0.0000**
WT EE Female - HD SH Male	6	-7.3121	1.0403	26	-7.0286	**0.0000**
WT EE Female - WT EE Male	6	-5.6402	0.9498	26	-5.9385	**0.0002**
WT EE Female - HD EE Male	6	-6.7601	1.1684	26	-5.7858	**0.0002**
WT EE Female - WT EX Male	6	-5.7076	1.1303	26	-5.0498	**0.0014**
WT EE Female - HD EX Male	6	-6.6912	1.0427	26	-6.4174	**0.0000**
HD EE Female - WT EX Female	6	0.2294	1.1297	26	0.2030	1.0000
HD EE Female - HD EX Female	6	-0.4621	1.0151	26	-0.4552	1.0000
HD EE Female - WT SH Male	6	-6.6546	1.0426	26	-6.3830	**0.0001**
HD EE Female - HD SH Male	6	-6.4844	1.1293	26	-5.7418	**0.0003**
HD EE Female - WT EE Male	6	-4.8125	1.1713	26	-4.1088	**0.0147**
HD EE Female - HD EE Male	6	-5.9324	0.9505	26	-6.2413	**0.0001**
HD EE Female - WT EX Male	6	-4.8799	1.0449	26	-4.6703	**0.0037**
HD EE Female - HD EX Male	6	-5.8635	1.1318	26	-5.1808	**0.0010**
WT EX Female - HD EX Female	6	-0.6914	0.9509	26	-0.7272	0.9998
WT EX Female - WT SH Male	6	-6.8840	1.1276	26	-6.1050	**0.0001**
WT EX Female - HD SH Male	6	-6.7137	1.0404	26	-6.4528	**0.0000**
WT EX Female - WT EE Male	6	-5.0419	1.1276	26	-4.4714	**0.0061**
WT EX Female - HD EE Male	6	-6.1617	1.0404	26	-5.9223	**0.0002**
WT EX Female - WT EX Male	6	-5.1093	0.9509	26	-5.3733	**0.0006**
WT EX Female - HD EX Male	6	-6.0929	1.1702	26	-5.2068	**0.0010**
HD EX Female - WT SH Male	6	-6.1925	1.0427	26	-5.9391	**0.0002**
HD EX Female - HD SH Male	6	-6.0223	1.1291	26	-5.3336	**0.0007**
HD EX Female - WT EE Male	6	-4.3504	1.0427	26	-4.1724	**0.0126**
HD EX Female - HD EE Male	6	-5.4703	1.1291	26	-4.8447	**0.0024**
HD EX Female - WT EX Male	6	-4.4178	1.1730	26	-3.7661	**0.0328**
HD EX Female - HD EX Male	6	-5.4014	0.9516	26	-5.6762	**0.0003**
WT SH Male - HD SH Male	6	0.1703	0.9498	26	0.1793	1.0000
WT SH Male - WT EE Male	6	1.8421	1.0123	26	1.8198	0.7936
WT SH Male - HD EE Male	6	0.7222	1.1278	26	0.6404	0.9999
WT SH Male - WT EX Male	6	1.7747	1.0140	26	1.7501	0.8291
WT SH Male - HD EX Male	6	0.7911	1.1297	26	0.7003	0.9999
HD SH Male - WT EE Male	6	1.6718	1.1278	26	1.4824	0.9326
HD SH Male - HD EE Male	6	0.5520	1.0123	26	0.5453	1.0000
HD SH Male - WT EX Male	6	1.6044	1.1297	26	1.4202	0.9486
HD SH Male - HD EX Male	6	0.6208	1.0140	26	0.6122	1.0000
WT EE Male - HD EE Male	6	-1.1198	0.9498	26	-1.1791	0.9862
WT EE Male - WT EX Male	6	-0.0674	1.0140	26	-0.0665	1.0000
WT EE Male - HD EX Male	6	-1.0510	1.1297	26	-0.9303	0.9980
HD EE Male - WT EX Male	6	1.0525	1.1297	26	0.9316	0.9980
HD EE Male - HD EX Male	6	0.0689	1.0140	26	0.0679	1.0000
WT EX Male - HD EX Male	6	-0.9836	0.9516	26	-1.0336	0.9952
WT SH Female - HD SH Female	7	0.6800	0.9419	26	0.7219	0.9998

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT SH Female - WT EE Female	7	0.8054	1.0003	26	0.8051	0.9995
WT SH Female - HD EE Female	7	0.1952	1.1112	26	0.1757	1.0000
WT SH Female - WT EX Female	7	0.3939	1.0007	26	0.3936	1.0000
WT SH Female - HD EX Female	7	-0.0800	1.1114	26	-0.0720	1.0000
WT SH Female - WT SH Male	7	-7.0444	0.9411	26	-7.4852	**0.0000**
WT SH Female - HD SH Male	7	-6.6566	1.1546	26	-5.7652	**0.0002**
WT SH Female - WT EE Male	7	-4.9460	1.1097	26	-4.4571	**0.0063**
WT SH Female - HD EE Male	7	-5.8483	1.0130	26	-5.7734	**0.0002**
WT SH Female - WT EX Male	7	-4.8265	1.1116	26	-4.3418	**0.0084**
WT SH Female - HD EX Male	7	-5.5925	1.0147	26	-5.5113	**0.0005**
HD SH Female - WT EE Female	7	0.1254	1.1112	26	0.1128	1.0000
HD SH Female - HD EE Female	7	-0.4848	1.0023	26	-0.4836	1.0000
HD SH Female - WT EX Female	7	-0.2860	1.1114	26	-0.2574	1.0000
HD SH Female - HD EX Female	7	-0.7599	1.0028	26	-0.7578	0.9997
HD SH Female - WT SH Male	7	-7.7244	1.1569	26	-6.6768	**0.0000**
HD SH Female - HD SH Male	7	-7.3366	0.9419	26	-7.7895	**0.0000**
HD SH Female - WT EE Male	7	-5.6260	1.0146	26	-5.5452	**0.0004**
HD SH Female - HD EE Male	7	-6.5283	1.1112	26	-5.8747	**0.0002**
HD SH Female - WT EX Male	7	-5.5064	1.0163	26	-5.4179	**0.0006**
HD SH Female - HD EX Male	7	-6.2725	1.1132	26	-5.6348	**0.0003**
WT EE Female - HD EE Female	7	-0.6102	0.9419	26	-0.6478	0.9999
WT EE Female - WT EX Female	7	-0.4114	1.0007	26	-0.4111	1.0000
WT EE Female - HD EX Female	7	-0.8853	1.1114	26	-0.7966	0.9995
WT EE Female - WT SH Male	7	-7.8498	1.1097	26	-7.0739	**0.0000**
WT EE Female - HD SH Male	7	-7.4620	1.0130	26	-7.3664	**0.0000**
WT EE Female - WT EE Male	7	-5.7514	0.9411	26	-6.1112	**0.0001**
WT EE Female - HD EE Male	7	-6.6537	1.1546	26	-5.7627	**0.0002**
WT EE Female - WT EX Male	7	-5.6318	1.1116	26	-5.0663	**0.0014**
WT EE Female - HD EX Male	7	-6.3979	1.0147	26	-6.3049	**0.0001**
HD EE Female - WT EX Female	7	0.1987	1.1114	26	0.1788	1.0000
HD EE Female - HD EX Female	7	-0.2752	1.0028	26	-0.2744	1.0000
HD EE Female - WT SH Male	7	-7.2396	1.0146	26	-7.1357	**0.0000**
HD EE Female - HD SH Male	7	-6.8518	1.1112	26	-6.1659	**0.0001**
HD EE Female - WT EE Male	7	-5.1412	1.1569	26	-4.4439	**0.0065**
HD EE Female - HD EE Male	7	-6.0435	0.9419	26	-6.4166	**0.0000**
HD EE Female - WT EX Male	7	-5.0217	1.0163	26	-4.9410	**0.0019**
HD EE Female - HD EX Male	7	-5.7877	1.1132	26	-5.1993	**0.0010**
WT EX Female - HD EX Female	7	-0.4739	0.9422	26	-0.5030	1.0000
WT EX Female - WT SH Male	7	-7.4384	1.1095	26	-6.7040	**0.0000**
WT EX Female - HD SH Male	7	-7.0506	1.0132	26	-6.9590	**0.0000**
WT EX Female - WT EE Male	7	-5.3399	1.1095	26	-4.8127	**0.0026**
WT EX Female - HD EE Male	7	-6.2422	1.0132	26	-6.1611	**0.0001**
WT EX Female - WT EX Male	7	-5.2204	0.9422	26	-5.5405	**0.0004**
WT EX Female - HD EX Male	7	-5.9865	1.1564	26	-5.1768	**0.0010**
HD EX Female - WT SH Male	7	-6.9645	1.0147	26	-6.8632	**0.0000**
HD EX Female - HD SH Male	7	-6.5767	1.1111	26	-5.9190	**0.0002**
HD EX Female - WT EE Male	7	-4.8660	1.0147	26	-4.7953	**0.0027**
HD EX Female - HD EE Male	7	-5.7683	1.1111	26	-5.1915	**0.0010**
HD EX Female - WT EX Male	7	-4.7465	1.1587	26	-4.0964	**0.0152**
HD EX Female - HD EX Male	7	-5.5126	0.9430	26	-5.8461	**0.0002**
WT SH Male - HD SH Male	7	0.3878	0.9411	26	0.4121	1.0000

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT SH Male - WT EE Male	7	2.0984	1.0003	26	2.0979	0.6284
WT SH Male - HD EE Male	7	1.1961	1.1097	26	1.0779	0.9932
WT SH Male - WT EX Male	7	2.2180	1.0018	26	2.2140	0.5545
WT SH Male - HD EX Male	7	1.4519	1.1114	26	1.3064	0.9708
HD SH Male - WT EE Male	7	1.7106	1.1097	26	1.5416	0.9145
HD SH Male - HD EE Male	7	0.8083	1.0003	26	0.8081	0.9994
HD SH Male - WT EX Male	7	1.8302	1.1114	26	1.6468	0.8756
HD SH Male - HD EX Male	7	1.0641	1.0018	26	1.0622	0.9939
WT EE Male - HD EE Male	7	-0.9023	0.9411	26	-0.9588	0.9974
WT EE Male - WT EX Male	7	0.1195	1.0018	26	0.1193	1.0000
WT EE Male - HD EX Male	7	-0.6465	1.1114	26	-0.5818	1.0000
HD EE Male - WT EX Male	7	1.0218	1.1114	26	0.9194	0.9982
HD EE Male - HD EX Male	7	0.2558	1.0018	26	0.2553	1.0000
WT EX Male - HD EX Male	7	-0.7661	0.9430	26	-0.8124	0.9994
WT SH Female - HD SH Female	8	0.8975	0.9366	26	0.9582	0.9974
WT SH Female - WT EE Female	8	1.0617	0.9930	26	1.0692	0.9936
WT SH Female - HD EE Female	8	0.6691	1.1002	26	0.6081	1.0000
WT SH Female - WT EX Female	8	0.8372	0.9933	26	0.8428	0.9992
WT SH Female - HD EX Female	8	0.5808	1.1002	26	0.5279	1.0000
WT SH Female - WT SH Male	8	-7.1556	0.9359	26	-7.6458	**0.0000**
WT SH Female - HD SH Male	8	-6.5502	1.1463	26	-5.7144	**0.0003**
WT SH Female - WT EE Male	8	-4.8008	1.0987	26	-4.3696	**0.0078**
WT SH Female - HD EE Male	8	-5.4856	0.9962	26	-5.5065	**0.0005**
WT SH Female - WT EX Male	8	-4.4943	1.1003	26	-4.0847	**0.0156**
WT SH Female - HD EX Male	8	-5.0429	0.9976	26	-5.0549	**0.0014**
HD SH Female - WT EE Female	8	0.1642	1.1002	26	0.1492	1.0000
HD SH Female - HD EE Female	8	-0.2284	0.9951	26	-0.2295	1.0000
HD SH Female - WT EX Female	8	-0.0603	1.1002	26	-0.0548	1.0000
HD SH Female - HD EX Female	8	-0.3167	0.9954	26	-0.3181	1.0000
HD SH Female - WT SH Male	8	-8.0530	1.1482	26	-7.0136	**0.0000**
HD SH Female - HD SH Male	8	-7.4477	0.9366	26	-7.9516	**0.0000**
HD SH Female - WT EE Male	8	-5.6983	0.9974	26	-5.7132	**0.0003**
HD SH Female - HD EE Male	8	-6.3830	1.1002	26	-5.8015	**0.0002**
HD SH Female - WT EX Male	8	-5.3918	0.9988	26	-5.3983	**0.0006**
HD SH Female - HD EX Male	8	-5.9404	1.1019	26	-5.3912	**0.0006**
WT EE Female - HD EE Female	8	-0.3926	0.9366	26	-0.4192	1.0000
WT EE Female - WT EX Female	8	-0.2245	0.9933	26	-0.2260	1.0000
WT EE Female - HD EX Female	8	-0.4809	1.1002	26	-0.4371	1.0000
WT EE Female - WT SH Male	8	-8.2173	1.0987	26	-7.4793	**0.0000**
WT EE Female - HD SH Male	8	-7.6119	0.9962	26	-7.6410	**0.0000**
WT EE Female - WT EE Male	8	-5.8625	0.9359	26	-6.2641	**0.0001**
WT EE Female - HD EE Male	8	-6.5472	1.1463	26	-5.7118	**0.0003**
WT EE Female - WT EX Male	8	-5.5560	1.1003	26	-5.0496	**0.0014**
WT EE Female - HD EX Male	8	-6.1046	0.9976	26	-6.1191	**0.0001**
HD EE Female - WT EX Female	8	0.1681	1.1002	26	0.1528	1.0000
HD EE Female - HD EX Female	8	-0.0883	0.9954	26	-0.0887	1.0000
HD EE Female - WT SH Male	8	-7.8246	0.9974	26	-7.8452	**0.0000**
HD EE Female - HD SH Male	8	-7.2193	1.1002	26	-6.5615	**0.0000**
HD EE Female - WT EE Male	8	-5.4699	1.1482	26	-4.7638	**0.0030**
HD EE Female - HD EE Male	8	-6.1546	0.9366	26	-6.5711	**0.0000**
HD EE Female - WT EX Male	8	-5.1634	0.9988	26	-5.1696	**0.0011**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
HD EE Female - HD EX Male	8	-5.7119	1.1019	26	-5.1839	**0.0010**
WT EX Female - HD EX Female	8	-0.2564	0.9370	26	-0.2736	1.0000
WT EX Female - WT SH Male	8	-7.9927	1.0986	26	-7.2755	**0.0000**
WT EX Female - HD SH Male	8	-7.3874	0.9964	26	-7.4138	**0.0000**
WT EX Female - WT EE Male	8	-5.6380	1.0986	26	-5.1321	**0.0012**
WT EX Female - HD EE Male	8	-6.3227	0.9964	26	-6.3453	**0.0001**
WT EX Female - WT EX Male	8	-5.3315	0.9370	26	-5.6900	**0.0003**
WT EX Female - HD EX Male	8	-5.8801	1.1481	26	-5.1216	**0.0012**
HD EX Female - WT SH Male	8	-7.7364	0.9976	26	-7.7548	**0.0000**
HD EX Female - HD SH Male	8	-7.1310	1.1002	26	-6.4819	**0.0000**
HD EX Female - WT EE Male	8	-5.3816	0.9976	26	-5.3944	**0.0006**
HD EX Female - HD EE Male	8	-6.0664	1.1002	26	-5.5141	**0.0004**
HD EX Female - WT EX Male	8	-5.0751	1.1500	26	-4.4131	**0.0070**
HD EX Female - HD EX Male	8	-5.6237	0.9377	26	-5.9971	**0.0001**
WT SH Male - HD SH Male	8	0.6053	0.9359	26	0.6468	0.9999
WT SH Male - WT EE Male	8	2.3548	0.9930	26	2.3714	0.4567
WT SH Male - HD EE Male	8	1.6700	1.0987	26	1.5200	0.9214
WT SH Male - WT EX Male	8	2.6612	0.9943	26	2.6764	0.2911
WT SH Male - HD EX Male	8	2.1127	1.1002	26	1.9203	0.7374
HD SH Male - WT EE Male	8	1.7494	1.0987	26	1.5923	0.8968
HD SH Male - HD EE Male	8	1.0647	0.9930	26	1.0722	0.9935
HD SH Male - WT EX Male	8	2.0559	1.1002	26	1.8686	0.7669
HD SH Male - HD EX Male	8	1.5074	0.9943	26	1.5159	0.9227
WT EE Male - HD EE Male	8	-0.6848	0.9359	26	-0.7317	0.9998
WT EE Male - WT EX Male	8	0.3064	0.9943	26	0.3082	1.0000
WT EE Male - HD EX Male	8	-0.2421	1.1002	26	-0.2200	1.0000
HD EE Male - WT EX Male	8	0.9912	1.1002	26	0.9009	0.9985
HD EE Male - HD EX Male	8	0.4427	0.9943	26	0.4452	1.0000
WT EX Male - HD EX Male	8	-0.5485	0.9377	26	-0.5850	1.0000
WT SH Female - HD SH Female	9	1.1150	0.9349	26	1.1927	0.9849
WT SH Female - WT EE Female	9	1.3180	0.9905	26	1.3306	0.9668
WT SH Female - HD EE Female	9	1.1430	1.0966	26	1.0423	0.9948
WT SH Female - WT EX Female	9	1.2805	0.9908	26	1.2923	0.9729
WT SH Female - HD EX Female	9	1.2416	1.0965	26	1.1324	0.9899
WT SH Female - WT SH Male	9	-7.2667	0.9341	26	-7.7790	**0.0000**
WT SH Female - HD SH Male	9	-6.4438	1.1435	26	-5.6353	**0.0003**
WT SH Female - WT EE Male	9	-4.6556	1.0950	26	-4.2517	**0.0104**
WT SH Female - HD EE Male	9	-5.1228	0.9905	26	-5.1717	**0.0011**
WT SH Female - WT EX Male	9	-4.1622	1.0965	26	-3.7960	**0.0306**
WT SH Female - HD EX Male	9	-4.4932	0.9919	26	-4.5301	**0.0053**
HD SH Female - WT EE Female	9	0.2030	1.0966	26	0.1851	1.0000
HD SH Female - HD EE Female	9	0.0279	0.9926	26	0.0281	1.0000
HD SH Female - WT EX Female	9	0.1654	1.0965	26	0.1509	1.0000
HD SH Female - HD EX Female	9	0.1266	0.9929	26	0.1275	1.0000
HD SH Female - WT SH Male	9	-8.3817	1.1453	26	-7.3184	**0.0000**
HD SH Female - HD SH Male	9	-7.5588	0.9349	26	-8.0854	**0.0000**
HD SH Female - WT EE Male	9	-5.7706	0.9916	26	-5.8195	**0.0002**
HD SH Female - HD EE Male	9	-6.2378	1.0966	26	-5.6886	**0.0003**
HD SH Female - WT EX Male	9	-5.2772	0.9929	26	-5.3150	**0.0007**
HD SH Female - HD EX Male	9	-5.6082	1.0981	26	-5.1074	**0.0012**
WT EE Female - HD EE Female	9	-0.1751	0.9349	26	-0.1873	1.0000

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT EE Female - WT EX Female	9	-0.0376	0.9908	26	-0.0379	1.0000
WT EE Female - HD EX Female	9	-0.0764	1.0965	26	-0.0697	1.0000
WT EE Female - WT SH Male	9	-8.5847	1.0950	26	-7.8401	**0.0000**
WT EE Female - HD SH Male	9	-7.7618	0.9905	26	-7.8360	**0.0000**
WT EE Female - WT EE Male	9	-5.9736	0.9341	26	-6.3948	**0.0000**
WT EE Female - HD EE Male	9	-6.4408	1.1435	26	-5.6327	**0.0003**
WT EE Female - WT EX Male	9	-5.4802	1.0965	26	-4.9980	**0.0016**
WT EE Female - HD EX Male	9	-5.8112	0.9919	26	-5.8590	**0.0002**
HD EE Female - WT EX Female	9	0.1375	1.0965	26	0.1254	1.0000
HD EE Female - HD EX Female	9	0.0987	0.9929	26	0.0994	1.0000
HD EE Female - WT SH Male	9	-8.4096	0.9916	26	-8.4810	**0.0000**
HD EE Female - HD SH Male	9	-7.5868	1.0966	26	-6.9187	**0.0000**
HD EE Female - WT EE Male	9	-5.7985	1.1453	26	-5.0629	**0.0014**
HD EE Female - HD EE Male	9	-6.2657	0.9349	26	-6.7022	**0.0000**
HD EE Female - WT EX Male	9	-5.3051	0.9929	26	-5.3431	**0.0007**
HD EE Female - HD EX Male	9	-5.6361	1.0981	26	-5.1328	**0.0012**
WT EX Female - HD EX Female	9	-0.0388	0.9352	26	-0.0415	1.0000
WT EX Female - WT SH Male	9	-8.5471	1.0949	26	-7.8063	**0.0000**
WT EX Female - HD SH Male	9	-7.7243	0.9908	26	-7.7960	**0.0000**
WT EX Female - WT EE Male	9	-5.9360	1.0949	26	-5.4215	**0.0006**
WT EX Female - HD EE Male	9	-6.4032	0.9908	26	-6.4627	**0.0000**
WT EX Female - WT EX Male	9	-5.4426	0.9352	26	-5.8195	**0.0002**
WT EX Female - HD EX Male	9	-5.7736	1.1453	26	-5.0412	**0.0015**
HD EX Female - WT SH Male	9	-8.5083	0.9919	26	-8.5782	**0.0000**
HD EX Female - HD SH Male	9	-7.6854	1.0965	26	-7.0092	**0.0000**
HD EX Female - WT EE Male	9	-5.8972	0.9919	26	-5.9456	**0.0002**
HD EX Female - HD EE Male	9	-6.3644	1.0965	26	-5.8044	**0.0002**
HD EX Female - WT EX Male	9	-5.4038	1.1471	26	-4.7108	**0.0034**
HD EX Female - HD EX Male	9	-5.7348	0.9360	26	-6.1270	**0.0001**
WT SH Male - HD SH Male	9	0.8229	0.9341	26	0.8809	0.9988
WT SH Male - WT EE Male	9	2.6111	0.9905	26	2.6361	0.3106
WT SH Male - HD EE Male	9	2.1439	1.0950	26	1.9579	0.7151
WT SH Male - WT EX Male	9	3.1045	0.9919	26	3.1300	0.1282
WT SH Male - HD EX Male	9	2.7735	1.0965	26	2.5295	0.3658
HD SH Male - WT EE Male	9	1.7883	1.0950	26	1.6331	0.8811
HD SH Male - HD EE Male	9	1.3210	0.9905	26	1.3336	0.9663
HD SH Male - WT EX Male	9	2.2816	1.0965	26	2.0809	0.6392
HD SH Male - HD EX Male	9	1.9506	0.9919	26	1.9667	0.7098
WT EE Male - HD EE Male	9	-0.4672	0.9341	26	-0.5002	1.0000
WT EE Male - WT EX Male	9	0.4934	0.9919	26	0.4974	1.0000
WT EE Male - HD EX Male	9	0.1624	1.0965	26	0.1481	1.0000
HD EE Male - WT EX Male	9	0.9606	1.0965	26	0.8761	0.9988
HD EE Male - HD EX Male	9	0.6296	0.9919	26	0.6348	0.9999
WT EX Male - HD EX Male	9	-0.3310	0.9360	26	-0.3536	1.0000
WT SH Female - HD SH Female	10	1.3326	0.9366	26	1.4227	0.9480
WT SH Female - WT EE Female	10	1.5744	0.9930	26	1.5855	0.8993
WT SH Female - HD EE Female	10	1.6168	1.1002	26	1.4695	0.9362
WT SH Female - WT EX Female	10	1.7237	0.9933	26	1.7354	0.8362
WT SH Female - HD EX Female	10	1.9024	1.1002	26	1.7291	0.8392
WT SH Female - WT SH Male	10	-7.3778	0.9359	26	-7.8832	**0.0000**
WT SH Female - HD SH Male	10	-6.3374	1.1463	26	-5.5287	**0.0004**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT SH Female - WT EE Male	10	-4.5103	1.0987	26	-4.1052	**0.0148**
WT SH Female - HD EE Male	10	-4.7600	0.9962	26	-4.7782	**0.0029**
WT SH Female - WT EX Male	10	-3.8300	1.1003	26	-3.4810	0.0619
WT SH Female - HD EX Male	10	-3.9435	0.9976	26	-3.9529	**0.0213**
HD SH Female - WT EE Female	10	0.2418	1.1002	26	0.2198	1.0000
HD SH Female - HD EE Female	10	0.2843	0.9951	26	0.2857	1.0000
HD SH Female - WT EX Female	10	0.3912	1.1002	26	0.3555	1.0000
HD SH Female - HD EX Female	10	0.5698	0.9954	26	0.5725	1.0000
HD SH Female - WT SH Male	10	-8.7104	1.1482	26	-7.5861	**0.0000**
HD SH Female - HD SH Male	10	-7.6700	0.9366	26	-8.1889	**0.0000**
HD SH Female - WT EE Male	10	-5.8429	0.9974	26	-5.8582	**0.0002**
HD SH Female - HD EE Male	10	-6.0926	1.1002	26	-5.5375	**0.0004**
HD SH Female - WT EX Male	10	-5.1626	0.9988	26	-5.1688	**0.0011**
HD SH Female - HD EX Male	10	-5.2761	1.1019	26	-4.7884	**0.0028**
WT EE Female - HD EE Female	10	0.0425	0.9366	26	0.0453	1.0000
WT EE Female - WT EX Female	10	0.1493	0.9933	26	0.1503	1.0000
WT EE Female - HD EX Female	10	0.3280	1.1002	26	0.2981	1.0000
WT EE Female - WT SH Male	10	-8.9522	1.0987	26	-8.1482	**0.0000**
WT EE Female - HD SH Male	10	-7.9118	0.9962	26	-7.9420	**0.0000**
WT EE Female - WT EE Male	10	-6.0847	0.9359	26	-6.5015	**0.0000**
WT EE Female - HD EE Male	10	-6.3344	1.1463	26	-5.5261	**0.0004**
WT EE Female - WT EX Male	10	-5.4044	1.1003	26	-4.9119	**0.0020**
WT EE Female - HD EX Male	10	-5.5179	0.9976	26	-5.5310	**0.0004**
HD EE Female - WT EX Female	10	0.1069	1.1002	26	0.0971	1.0000
HD EE Female - HD EX Female	10	0.2856	0.9954	26	0.2869	1.0000
HD EE Female - WT SH Male	10	-8.9946	0.9974	26	-9.0183	**0.0000**
HD EE Female - HD SH Male	10	-7.9542	1.1002	26	-7.2295	**0.0000**
HD EE Female - WT EE Male	10	-6.1272	1.1482	26	-5.3363	**0.0007**
HD EE Female - HD EE Male	10	-6.3769	0.9366	26	-6.8083	**0.0000**
HD EE Female - WT EX Male	10	-5.4469	0.9988	26	-5.4534	**0.0005**
HD EE Female - HD EX Male	10	-5.5603	1.1019	26	-5.0463	**0.0015**
WT EX Female - HD EX Female	10	0.1787	0.9370	26	0.1907	1.0000
WT EX Female - WT SH Male	10	-9.1015	1.0986	26	-8.2848	**0.0000**
WT EX Female - HD SH Male	10	-8.0611	0.9964	26	-8.0899	**0.0000**
WT EX Female - WT EE Male	10	-6.2340	1.0986	26	-5.6746	**0.0003**
WT EX Female - HD EE Male	10	-6.4837	0.9964	26	-6.5069	**0.0000**
WT EX Female - WT EX Male	10	-5.5538	0.9370	26	-5.9272	**0.0002**
WT EX Female - HD EX Male	10	-5.6672	1.1481	26	-4.9363	**0.0019**
HD EX Female - WT SH Male	10	-9.2802	0.9976	26	-9.3023	**0.0000**
HD EX Female - HD SH Male	10	-8.2398	1.1002	26	-7.4897	**0.0000**
HD EX Female - WT EE Male	10	-6.4127	0.9976	26	-6.4280	**0.0000**
HD EX Female - HD EE Male	10	-6.6624	1.1002	26	-6.0559	**0.0001**
HD EX Female - WT EX Male	10	-5.7325	1.1500	26	-4.9847	**0.0017**
HD EX Female - HD EX Male	10	-5.8459	0.9377	26	-6.2341	**0.0001**
WT SH Male - HD SH Male	10	1.0404	0.9359	26	1.1117	0.9913
WT SH Male - WT EE Male	10	2.8675	0.9930	26	2.8878	0.2026
WT SH Male - HD EE Male	10	2.6178	1.0987	26	2.3827	0.4499
WT SH Male - WT EX Male	10	3.5478	0.9943	26	3.5680	0.0512
WT SH Male - HD EX Male	10	3.4343	1.1002	26	3.1215	0.1304
HD SH Male - WT EE Male	10	1.8271	1.0987	26	1.6630	0.8688
HD SH Male - HD EE Male	10	1.5774	0.9930	26	1.5885	0.8982

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
HD SH Male - WT EX Male	10	2.5073	1.1002	26	2.2790	0.5136
HD SH Male - HD EX Male	10	2.3939	0.9943	26	2.4075	0.4351
WT EE Male - HD EE Male	10	-0.2497	0.9359	26	-0.2668	1.0000
WT EE Male - WT EX Male	10	0.6803	0.9943	26	0.6842	0.9999
WT EE Male - HD EX Male	10	0.5668	1.1002	26	0.5152	1.0000
HD EE Male - WT EX Male	10	0.9300	1.1002	26	0.8453	0.9992
HD EE Male - HD EX Male	10	0.8165	0.9943	26	0.8212	0.9994
WT EX Male - HD EX Male	10	-0.1135	0.9377	26	-0.1210	1.0000
WT SH Female - HD SH Female	11	1.5501	0.9419	26	1.6458	0.8760
WT SH Female - WT EE Female	11	1.8307	1.0003	26	1.8303	0.7880
WT SH Female - HD EE Female	11	2.0907	1.1112	26	1.8814	0.7597
WT SH Female - WT EX Female	11	2.1670	1.0007	26	2.1654	0.5855
WT SH Female - HD EX Female	11	2.5632	1.1114	26	2.3064	0.4965
WT SH Female - WT SH Male	11	-7.4889	0.9411	26	-7.9575	**0.0000**
WT SH Female - HD SH Male	11	-6.2310	1.1546	26	-5.3966	**0.0006**
WT SH Female - WT EE Male	11	-4.3651	1.1097	26	-3.9336	**0.0223**
WT SH Female - HD EE Male	11	-4.3973	1.0130	26	-4.3410	**0.0084**
WT SH Female - WT EX Male	11	-3.4979	1.1116	26	-3.1467	0.1241
WT SH Female - HD EX Male	11	-3.3938	1.0147	26	-3.3445	0.0829
HD SH Female - WT EE Female	11	0.2806	1.1112	26	0.2525	1.0000
HD SH Female - HD EE Female	11	0.5406	1.0023	26	0.5394	1.0000
HD SH Female - WT EX Female	11	0.6169	1.1114	26	0.5551	1.0000
HD SH Female - HD EX Female	11	1.0131	1.0028	26	1.0103	0.9960
HD SH Female - WT SH Male	11	-9.0390	1.1569	26	-7.8131	**0.0000**
HD SH Female - HD SH Male	11	-7.7811	0.9419	26	-8.2615	**0.0000**
HD SH Female - WT EE Male	11	-5.9152	1.0146	26	-5.8303	**0.0002**
HD SH Female - HD EE Male	11	-5.9474	1.1112	26	-5.3520	**0.0007**
HD SH Female - WT EX Male	11	-5.0480	1.0163	26	-4.9669	**0.0018**
HD SH Female - HD EX Male	11	-4.9439	1.1132	26	-4.4413	**0.0066**
WT EE Female - HD EE Female	11	0.2600	0.9419	26	0.2760	1.0000
WT EE Female - WT EX Female	11	0.3362	1.0007	26	0.3360	1.0000
WT EE Female - HD EX Female	11	0.7325	1.1114	26	0.6591	0.9999
WT EE Female - WT SH Male	11	-9.3196	1.1097	26	-8.3985	**0.0000**
WT EE Female - HD SH Male	11	-8.0617	1.0130	26	-7.9585	**0.0000**
WT EE Female - WT EE Male	11	-6.1958	0.9411	26	-6.5835	**0.0000**
WT EE Female - HD EE Male	11	-6.2280	1.1546	26	-5.3940	**0.0006**
WT EE Female - WT EX Male	11	-5.3286	1.1116	26	-4.7936	**0.0027**
WT EE Female - HD EX Male	11	-5.2246	1.0147	26	-5.1486	**0.0011**
HD EE Female - WT EX Female	11	0.0763	1.1114	26	0.0686	1.0000
HD EE Female - HD EX Female	11	0.4725	1.0028	26	0.4712	1.0000
HD EE Female - WT SH Male	11	-9.5796	1.0146	26	-9.4422	**0.0000**
HD EE Female - HD SH Male	11	-8.3217	1.1112	26	-7.4886	**0.0000**
HD EE Female - WT EE Male	11	-6.4558	1.1569	26	-5.5802	**0.0004**
HD EE Female - HD EE Male	11	-6.4880	0.9419	26	-6.8885	**0.0000**
HD EE Female - WT EX Male	11	-5.5886	1.0163	26	-5.4988	**0.0005**
HD EE Female - HD EX Male	11	-5.4845	1.1132	26	-4.9269	**0.0020**
WT EX Female - HD EX Female	11	0.3962	0.9422	26	0.4205	1.0000
WT EX Female - WT SH Male	11	-9.6559	1.1095	26	-8.7026	**0.0000**
WT EX Female - HD SH Male	11	-8.3980	1.0132	26	-8.2889	**0.0000**
WT EX Female - WT EE Male	11	-6.5321	1.1095	26	-5.8872	**0.0002**
WT EX Female - HD EE Male	11	-6.5642	1.0132	26	-6.4790	**0.0000**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT EX Female - WT EX Male	11	-5.6649	0.9422	26	-6.0123	**0.0001**
WT EX Female - HD EX Male	11	-5.5608	1.1564	26	-4.8087	**0.0026**
HD EX Female - WT SH Male	11	-10.0521	1.0147	26	-9.9060	**0.0000**
HD EX Female - HD SH Male	11	-8.7942	1.1111	26	-7.9148	**0.0000**
HD EX Female - WT EE Male	11	-6.9283	1.0147	26	-6.8276	**0.0000**
HD EX Female - HD EE Male	11	-6.9605	1.1111	26	-6.2645	**0.0001**
HD EX Female - WT EX Male	11	-6.0611	1.1587	26	-5.2310	**0.0009**
HD EX Female - HD EX Male	11	-5.9570	0.9430	26	-6.3174	**0.0001**
WT SH Male - HD SH Male	11	1.2579	0.9411	26	1.3366	0.9657
WT SH Male - WT EE Male	11	3.1238	1.0003	26	3.1230	0.1300
WT SH Male - HD EE Male	11	3.0916	1.1097	26	2.7861	0.2424
WT SH Male - WT EX Male	11	3.9910	1.0018	26	3.9840	**0.0198**
WT SH Male - HD EX Male	11	4.0951	1.1114	26	3.6847	**0.0395**
HD SH Male - WT EE Male	11	1.8659	1.1097	26	1.6814	0.8609
HD SH Male - HD EE Male	11	1.8337	1.0003	26	1.8332	0.7863
HD SH Male - WT EX Male	11	2.7331	1.1114	26	2.4592	0.4050
HD SH Male - HD EX Male	11	2.8371	1.0018	26	2.8321	0.2237
WT EE Male - HD EE Male	11	-0.0322	0.9411	26	-0.0342	1.0000
WT EE Male - WT EX Male	11	0.8672	1.0018	26	0.8657	0.9990
WT EE Male - HD EX Male	11	0.9713	1.1114	26	0.8739	0.9989
HD EE Male - WT EX Male	11	0.8994	1.1114	26	0.8092	0.9994
HD EE Male - HD EX Male	11	1.0034	1.0018	26	1.0017	0.9963
WT EX Male - HD EX Male	11	0.1041	0.9430	26	0.1104	1.0000
WT SH Female - HD SH Female	12	1.7676	0.9505	26	1.8597	0.7719
WT SH Female - WT EE Female	12	2.0871	1.0123	26	2.0618	0.6512
WT SH Female - HD EE Female	12	2.5646	1.1293	26	2.2709	0.5187
WT SH Female - WT EX Female	12	2.6102	1.0130	26	2.5767	0.3407
WT SH Female - HD EX Female	12	3.2240	1.1297	26	2.8539	0.2153
WT SH Female - WT SH Male	12	-7.6000	0.9498	26	-8.0020	**0.0000**
WT SH Female - HD SH Male	12	-6.1246	1.1684	26	-5.2418	**0.0009**
WT SH Female - WT EE Male	12	-4.2199	1.1278	26	-3.7417	**0.0347**
WT SH Female - HD EE Male	12	-4.0345	1.0403	26	-3.8781	**0.0254**
WT SH Female - WT EX Male	12	-3.1658	1.1303	26	-2.8009	0.2362
WT SH Female - HD EX Male	12	-2.8441	1.0427	26	-2.7278	0.2675
HD SH Female - WT EE Female	12	0.3194	1.1293	26	0.2829	1.0000
HD SH Female - HD EE Female	12	0.7970	1.0143	26	0.7857	0.9996
HD SH Female - WT EX Female	12	0.8426	1.1297	26	0.7459	0.9997
HD SH Female - HD EX Female	12	1.4564	1.0151	26	1.4348	0.9451
HD SH Female - WT SH Male	12	-9.3677	1.1713	26	-7.9979	**0.0000**
HD SH Female - HD SH Male	12	-7.8922	0.9505	26	-8.3032	**0.0000**
HD SH Female - WT EE Male	12	-5.9875	1.0426	26	-5.7431	**0.0003**
HD SH Female - HD EE Male	12	-5.8021	1.1293	26	-5.1377	**0.0012**
HD SH Female - WT EX Male	12	-4.9334	1.0449	26	-4.7215	**0.0033**
HD SH Female - HD EX Male	12	-4.6118	1.1318	26	-4.0748	**0.0160**
WT EE Female - HD EE Female	12	0.4775	0.9505	26	0.5024	1.0000
WT EE Female - WT EX Female	12	0.5232	1.0130	26	0.5165	1.0000
WT EE Female - HD EX Female	12	1.1369	1.1297	26	1.0064	0.9961
WT EE Female - WT SH Male	12	-9.6871	1.1278	26	-8.5894	**0.0000**
WT EE Female - HD SH Male	12	-8.2116	1.0403	26	-7.8933	**0.0000**
WT EE Female - WT EE Male	12	-6.3070	0.9498	26	-6.6405	**0.0000**
WT EE Female - HD EE Male	12	-6.1216	1.1684	26	-5.2393	**0.0009**

(continued)

contrast	Week	estimate	SE	df	t.ratio	p.value
WT EE Female - WT EX Male	12	-5.2528	1.1303	26	-4.6475	**0.0040**
WT EE Female - HD EX Male	12	-4.9312	1.0427	26	-4.7294	**0.0032**
HD EE Female - WT EX Female	12	0.0456	1.1297	26	0.0404	1.0000
HD EE Female - HD EX Female	12	0.6594	1.0151	26	0.6496	0.9999
HD EE Female - WT SH Male	12	-10.1646	1.0426	26	-9.7497	**0.0000**
HD EE Female - HD SH Male	12	-8.6892	1.1293	26	-7.6941	**0.0000**
HD EE Female - WT EE Male	12	-6.7845	1.1713	26	-5.7924	**0.0002**
HD EE Female - HD EE Male	12	-6.5991	0.9505	26	-6.9428	**0.0000**
HD EE Female - WT EX Male	12	-5.7304	1.0449	26	-5.4842	**0.0005**
HD EE Female - HD EX Male	12	-5.4087	1.1318	26	-4.7789	**0.0028**
WT EX Female - HD EX Female	12	0.6138	0.9509	26	0.6455	0.9999
WT EX Female - WT SH Male	12	-10.2103	1.1276	26	-9.0549	**0.0000**
WT EX Female - HD SH Male	12	-8.7348	1.0404	26	-8.3953	**0.0000**
WT EX Female - WT EE Male	12	-6.8301	1.1276	26	-6.0573	**0.0001**
WT EX Female - HD EE Male	12	-6.6448	1.0404	26	-6.3865	**0.0000**
WT EX Female - WT EX Male	12	-5.7760	0.9509	26	-6.0745	**0.0001**
WT EX Female - HD EX Male	12	-5.4544	1.1702	26	-4.6612	**0.0038**
HD EX Female - WT SH Male	12	-10.8240	1.0427	26	-10.3811	**0.0000**
HD EX Female - HD SH Male	12	-9.3486	1.1291	26	-8.2795	**0.0000**
HD EX Female - WT EE Male	12	-7.4439	1.0427	26	-7.1393	**0.0000**
HD EX Female - HD EE Male	12	-7.2585	1.1291	26	-6.4285	**0.0000**
HD EX Female - WT EX Male	12	-6.3898	1.1730	26	-5.4472	**0.0005**
HD EX Female - HD EX Male	12	-6.0682	0.9516	26	-6.3769	**0.0001**
WT SH Male - HD SH Male	12	1.4755	0.9498	26	1.5535	0.9106
WT SH Male - WT EE Male	12	3.3802	1.0123	26	3.3392	0.0838
WT SH Male - HD EE Male	12	3.5655	1.1278	26	3.1615	0.1205
WT SH Male - WT EX Male	12	4.4343	1.0140	26	4.3729	**0.0078**
WT SH Male - HD EX Male	12	4.7559	1.1297	26	4.2099	**0.0116**
HD SH Male - WT EE Male	12	1.9047	1.1278	26	1.6888	0.8576
HD SH Male - HD EE Male	12	2.0901	1.0123	26	2.0647	0.6493
HD SH Male - WT EX Male	12	2.9588	1.1297	26	2.6191	0.3190
HD SH Male - HD EX Male	12	3.2804	1.0140	26	3.2350	0.1039
WT EE Male - HD EE Male	12	0.1854	0.9498	26	0.1952	1.0000
WT EE Male - WT EX Male	12	1.0541	1.0140	26	1.0395	0.9949
WT EE Male - HD EX Male	12	1.3757	1.1297	26	1.2178	0.9824
HD EE Male - WT EX Male	12	0.8687	1.1297	26	0.7690	0.9996
HD EE Male - HD EX Male	12	1.1904	1.0140	26	1.1739	0.9867
WT EX Male - HD EX Male	12	0.3216	0.9516	26	0.3380	1.0000

6.1.12 Rotarod

contrast	Sex	Week	estimate	SE	df	t.ratio	p.value
WT SH - HD SH	Female	6	18.7251	17.3448	26	1.0796	0.8850
WT SH - WT EE	Female	6	-52.7360	18.9940	26	-2.7765	0.0937
WT SH - HD EE	Female	6	-21.3951	22.1873	26	-0.9643	0.9251
WT SH - WT EX	Female	6	20.9917	19.0720	26	1.1007	0.8766
WT SH - HD EX	Female	6	14.5332	22.2355	26	0.6536	0.9855
HD SH - WT EE	Female	6	-71.4611	22.1873	26	-3.2208	**0.0359**
HD SH - HD EE	Female	6	-40.1202	19.1262	26	-2.0977	0.3193

(continued)

contrast	Sex	Week	estimate	SE	df	t.ratio	p.value
HD SH - WT EX	Female	6	2.2666	22.2353	26	0.1019	1.0000
HD SH - HD EX	Female	6	-4.1919	19.2047	26	-0.2183	0.9999
WT EE - HD EE	Female	6	31.3409	17.3448	26	1.8069	0.4788
WT EE - WT EX	Female	6	73.7277	19.0720	26	3.8658	**0.0078**
WT EE - HD EX	Female	6	67.2692	22.2355	26	3.0253	0.0554
HD EE - WT EX	Female	6	42.3868	22.2353	26	1.9063	0.4209
HD EE - HD EX	Female	6	35.9283	19.2047	26	1.8708	0.4412
WT EX - HD EX	Female	6	-6.4585	17.3693	26	-0.3718	0.9990
WT SH - HD SH	Male	6	27.8086	17.2957	26	1.6078	0.6009
WT SH - WT EE	Male	6	-89.0323	18.9940	26	-4.6874	**0.0010**
WT SH - HD EE	Male	6	-48.6079	22.0919	26	-2.2003	0.2715
WT SH - WT EX	Male	6	4.2929	19.1389	26	0.2243	0.9999
WT SH - HD EX	Male	6	6.9180	22.2355	26	0.3111	0.9996
HD SH - WT EE	Male	6	-116.8409	22.0919	26	-5.2889	**0.0002**
HD SH - HD EE	Male	6	-76.4165	18.9940	26	-4.0232	**0.0053**
HD SH - WT EX	Male	6	-23.5157	22.2355	26	-1.0576	0.8934
HD SH - HD EX	Male	6	-20.8907	19.1389	26	-1.0915	0.8803
WT EE - HD EE	Male	6	40.4244	17.2957	26	2.3372	0.2156
WT EE - WT EX	Male	6	93.3252	19.1389	26	4.8762	**0.0006**
WT EE - HD EX	Male	6	95.9503	22.2355	26	4.3152	**0.0025**
HD EE - WT EX	Male	6	52.9008	22.2355	26	2.3791	0.2003
HD EE - HD EX	Male	6	55.5258	19.1389	26	2.9012	0.0723
WT EX - HD EX	Male	6	2.6250	17.4175	26	0.1507	1.0000
WT SH - HD SH	Female	7	33.1104	16.3182	26	2.0291	0.3539
WT SH - WT EE	Female	7	-48.3822	17.5987	26	-2.7492	0.0990
WT SH - HD EE	Female	7	-2.6560	20.1658	26	-0.1317	1.0000
WT SH - WT EX	Female	7	21.0986	17.6503	26	1.1954	0.8350
WT SH - HD EX	Female	7	29.0254	20.1904	26	1.4376	0.7047
HD SH - WT EE	Female	7	-81.4926	20.1658	26	-4.0411	**0.0050**
HD SH - HD EE	Female	7	-35.7664	17.7413	26	-2.0160	0.3608
HD SH - WT EX	Female	7	-12.0118	20.1900	26	-0.5949	0.9905
HD SH - HD EX	Female	7	-4.0850	17.7936	26	-0.2296	0.9999
WT EE - HD EE	Female	7	45.7262	16.3182	26	2.8022	0.0889
WT EE - WT EX	Female	7	69.4808	17.6503	26	3.9365	**0.0065**
WT EE - HD EX	Female	7	77.4076	20.1904	26	3.8339	**0.0084**
HD EE - WT EX	Female	7	23.7546	20.1900	26	1.1765	0.8438
HD EE - HD EX	Female	7	31.6814	17.7936	26	1.7805	0.4947
WT EX - HD EX	Female	7	7.9268	16.3442	26	0.4850	0.9963
WT SH - HD SH	Male	7	42.1940	16.2660	26	2.5940	0.1346
WT SH - WT EE	Male	7	-84.6785	17.5987	26	-4.8116	**0.0007**
WT SH - HD EE	Male	7	-29.8687	20.0608	26	-1.4889	0.6740
WT SH - WT EX	Male	7	4.3998	17.7226	26	0.2483	0.9999
WT SH - HD EX	Male	7	21.4102	20.1904	26	1.0604	0.8924
HD SH - WT EE	Male	7	-126.8725	20.0608	26	-6.3244	**0.0000**
HD SH - HD EE	Male	7	-72.0627	17.5987	26	-4.0948	**0.0044**
HD SH - WT EX	Male	7	-37.7942	20.1904	26	-1.8719	0.4406
HD SH - HD EX	Male	7	-20.7838	17.7226	26	-1.1727	0.8455
WT EE - HD EE	Male	7	54.8098	16.2660	26	3.3696	**0.0255**
WT EE - WT EX	Male	7	89.0783	17.7226	26	5.0263	**0.0004**
WT EE - HD EX	Male	7	106.0887	20.1904	26	5.2544	**0.0002**
HD EE - WT EX	Male	7	34.2685	20.1904	26	1.6973	0.5455

(continued)

contrast	Sex	Week	estimate	SE	df	t.ratio	p.value
HD EE - HD EX	Male	7	51.2789	17.7226	26	2.8934	0.0735
WT EX - HD EX	Male	7	17.0104	16.3954	26	1.0375	0.9008
WT SH - HD SH	Female	8	47.4958	15.5962	26	3.0453	0.0531
WT SH - WT EE	Female	8	-44.0284	16.6035	26	-2.6518	0.1203
WT SH - HD EE	Female	8	16.0832	18.6970	26	0.8602	0.9526
WT SH - WT EX	Female	8	21.2055	16.6351	26	1.2747	0.7956
WT SH - HD EX	Female	8	43.5177	18.7031	26	2.3268	0.2196
HD SH - WT EE	Female	8	-91.5242	18.6970	26	-4.8951	**0.0006**
HD SH - HD EE	Female	8	-31.4126	16.7546	26	-1.8749	0.4389
HD SH - WT EX	Female	8	-26.2903	18.7027	26	-1.4057	0.7234
HD SH - HD EX	Female	8	-3.9781	16.7871	26	-0.2370	0.9999
WT EE - HD EE	Female	8	60.1116	15.5962	26	3.8542	**0.0080**
WT EE - WT EX	Female	8	65.2338	16.6351	26	3.9215	**0.0068**
WT EE - HD EX	Female	8	87.5460	18.7031	26	4.6808	**0.0010**
HD EE - WT EX	Female	8	5.1223	18.7027	26	0.2739	0.9998
HD EE - HD EX	Female	8	27.4345	16.7871	26	1.6343	0.5845
WT EX - HD EX	Female	8	22.3122	15.6235	26	1.4281	0.7103
WT SH - HD SH	Male	8	56.5793	15.5416	26	3.6405	**0.0135**
WT SH - WT EE	Male	8	-80.3247	16.6035	26	-4.8378	**0.0007**
WT SH - HD EE	Male	8	-11.1296	18.5838	26	-0.5989	0.9902
WT SH - WT EX	Male	8	4.5067	16.7118	26	0.2697	0.9998
WT SH - HD EX	Male	8	35.9024	18.7031	26	1.9196	0.4133
HD SH - WT EE	Male	8	-136.9040	18.5838	26	-7.3669	**0.0000**
HD SH - HD EE	Male	8	-67.7089	16.6035	26	-4.0780	**0.0046**
HD SH - WT EX	Male	8	-52.0727	18.7031	26	-2.7842	0.0922
HD SH - HD EX	Male	8	-20.6769	16.7118	26	-1.2373	0.8147
WT EE - HD EE	Male	8	69.1951	15.5416	26	4.4523	**0.0018**
WT EE - WT EX	Male	8	84.8314	16.7118	26	5.0761	**0.0004**
WT EE - HD EX	Male	8	116.2271	18.7031	26	6.2143	**0.0000**
HD EE - WT EX	Male	8	15.6363	18.7031	26	0.8360	0.9579
HD EE - HD EX	Male	8	47.0320	16.7118	26	2.8143	0.0867
WT EX - HD EX	Male	8	31.3957	15.6770	26	2.0027	0.3678
WT SH - HD SH	Female	9	61.8811	15.2224	26	4.0651	**0.0047**
WT SH - WT EE	Female	9	-39.6746	16.0828	26	-2.4669	0.1710
WT SH - HD EE	Female	9	34.8223	17.9176	26	1.9435	0.4000
WT SH - WT EX	Female	9	21.3124	16.1035	26	1.3235	0.7697
WT SH - HD EX	Female	9	58.0099	17.9132	26	3.2384	**0.0345**
HD SH - WT EE	Female	9	-101.5557	17.9176	26	-5.6679	**0.0001**
HD SH - HD EE	Female	9	-27.0588	16.2388	26	-1.6663	0.5647
HD SH - WT EX	Female	9	-40.5688	17.9128	26	-2.2648	0.2440
HD SH - HD EX	Female	9	-3.8713	16.2605	26	-0.2381	0.9999
WT EE - HD EE	Female	9	74.4969	15.2224	26	4.8939	**0.0006**
WT EE - WT EX	Female	9	60.9869	16.1035	26	3.7872	**0.0094**
WT EE - HD EX	Female	9	97.6844	17.9132	26	5.4532	**0.0001**
HD EE - WT EX	Female	9	-13.5100	17.9128	26	-0.7542	0.9727
HD EE - HD EX	Female	9	23.1875	16.2605	26	1.4260	0.7115
WT EX - HD EX	Female	9	36.6975	15.2504	26	2.4063	0.1908
WT SH - HD SH	Male	9	70.9647	15.1665	26	4.6791	**0.0010**
WT SH - WT EE	Male	9	-75.9709	16.0828	26	-4.7237	**0.0009**
WT SH - HD EE	Male	9	7.6096	17.7994	26	0.4275	0.9980
WT SH - WT EX	Male	9	4.6136	16.1828	26	0.2851	0.9997

(continued)

contrast	Sex	Week	estimate	SE	df	t.ratio	p.value
WT SH - HD EX	Male	9	50.3946	17.9132	26	2.8133	0.0869
HD SH - WT EE	Male	9	-146.9356	17.7994	26	-8.2551	**0.0000**
HD SH - HD EE	Male	9	-63.3551	16.0828	26	-3.9393	**0.0065**
HD SH - WT EX	Male	9	-66.3511	17.9132	26	-3.7040	**0.0116**
HD SH - HD EX	Male	9	-20.5701	16.1828	26	-1.2711	0.7975
WT EE - HD EE	Male	9	83.5805	15.1665	26	5.5109	**0.0001**
WT EE - WT EX	Male	9	80.5845	16.1828	26	4.9796	**0.0005**
WT EE - HD EX	Male	9	126.3655	17.9132	26	7.0543	**0.0000**
HD EE - WT EX	Male	9	-2.9960	17.9132	26	-0.1673	1.0000
HD EE - HD EX	Male	9	42.7851	16.1828	26	2.6439	0.1222
WT EX - HD EX	Male	9	45.7811	15.3052	26	2.9912	0.0597
WT SH - HD SH	Female	10	76.2665	15.2224	26	5.0101	**0.0004**
WT SH - WT EE	Female	10	-35.3208	16.0828	26	-2.1962	0.2733
WT SH - HD EE	Female	10	53.5615	17.9176	26	2.9893	0.0599
WT SH - WT EX	Female	10	21.4192	16.1035	26	1.3301	0.7661
WT SH - HD EX	Female	10	72.5021	17.9132	26	4.0474	**0.0050**
HD SH - WT EE	Female	10	-111.5873	17.9176	26	-6.2278	**0.0000**
HD SH - HD EE	Female	10	-22.7050	16.2388	26	-1.3982	0.7277
HD SH - WT EX	Female	10	-54.8473	17.9128	26	-3.0619	0.0512
HD SH - HD EX	Female	10	-3.7644	16.2605	26	-0.2315	0.9999
WT EE - HD EE	Female	10	88.8823	15.2224	26	5.8389	**0.0001**
WT EE - WT EX	Female	10	56.7400	16.1035	26	3.5234	**0.0178**
WT EE - HD EX	Female	10	107.8229	17.9132	26	6.0192	**0.0000**
HD EE - WT EX	Female	10	-32.1423	17.9128	26	-1.7944	0.4864
HD EE - HD EX	Female	10	18.9406	16.2605	26	1.1648	0.8491
WT EX - HD EX	Female	10	51.0829	15.2504	26	3.3496	**0.0268**
WT SH - HD SH	Male	10	85.3500	15.1665	26	5.6276	**0.0001**
WT SH - WT EE	Male	10	-71.6171	16.0828	26	-4.4530	**0.0018**
WT SH - HD EE	Male	10	26.3487	17.7994	26	1.4803	0.6792
WT SH - WT EX	Male	10	4.7204	16.1828	26	0.2917	0.9997
WT SH - HD EX	Male	10	64.8869	17.9132	26	3.6223	**0.0141**
HD SH - WT EE	Male	10	-156.9671	17.7994	26	-8.8187	**0.0000**
HD SH - HD EE	Male	10	-59.0013	16.0828	26	-3.6686	**0.0126**
HD SH - WT EX	Male	10	-80.6296	17.9132	26	-4.5011	**0.0016**
HD SH - HD EX	Male	10	-20.4632	16.1828	26	-1.2645	0.8009
WT EE - HD EE	Male	10	97.9658	15.1665	26	6.4594	**0.0000**
WT EE - WT EX	Male	10	76.3375	16.1828	26	4.7172	**0.0009**
WT EE - HD EX	Male	10	136.5040	17.9132	26	7.6203	**0.0000**
HD EE - WT EX	Male	10	-21.6283	17.9132	26	-1.2074	0.8293
HD EE - HD EX	Male	10	38.5381	16.1828	26	2.3814	0.1995
WT EX - HD EX	Male	10	60.1664	15.3052	26	3.9311	**0.0066**
WT SH - HD SH	Female	11	90.6518	15.5962	26	5.8124	**0.0001**
WT SH - WT EE	Female	11	-30.9670	16.6035	26	-1.8651	0.4445
WT SH - HD EE	Female	11	72.3006	18.6970	26	3.8670	**0.0078**
WT SH - WT EX	Female	11	21.5261	16.6351	26	1.2940	0.7855
WT SH - HD EX	Female	11	86.9943	18.7031	26	4.6513	**0.0011**
HD SH - WT EE	Female	11	-121.6188	18.6970	26	-6.5047	**0.0000**
HD SH - HD EE	Female	11	-18.3512	16.7546	26	-1.0953	0.8788
HD SH - WT EX	Female	11	-69.1257	18.7027	26	-3.6960	**0.0118**
HD SH - HD EX	Female	11	-3.6575	16.7871	26	-0.2179	0.9999
WT EE - HD EE	Female	11	103.2676	15.5962	26	6.6213	**0.0000**

(continued)

contrast	Sex	Week	estimate	SE	df	t.ratio	p.value
WT EE - WT EX	Female	11	52.4931	16.6351	26	3.1556	**0.0416**
WT EE - HD EX	Female	11	117.9613	18.7031	26	6.3071	**0.0000**
HD EE - WT EX	Female	11	-50.7745	18.7027	26	-2.7148	0.1061
HD EE - HD EX	Female	11	14.6937	16.7871	26	0.8753	0.9491
WT EX - HD EX	Female	11	65.4682	15.6235	26	4.1904	**0.0035**
WT SH - HD SH	Male	11	99.7354	15.5416	26	6.4173	**0.0000**
WT SH - WT EE	Male	11	-67.2633	16.6035	26	-4.0512	**0.0049**
WT SH - HD EE	Male	11	45.0879	18.5838	26	2.4262	0.1841
WT SH - WT EX	Male	11	4.8273	16.7118	26	0.2889	0.9997
WT SH - HD EX	Male	11	79.3791	18.7031	26	4.2442	**0.0030**
HD SH - WT EE	Male	11	-166.9987	18.5838	26	-8.9863	**0.0000**
HD SH - HD EE	Male	11	-54.6475	16.6035	26	-3.2913	**0.0306**
HD SH - WT EX	Male	11	-94.9081	18.7031	26	-5.0745	**0.0004**
HD SH - HD EX	Male	11	-20.3563	16.7118	26	-1.2181	0.8242
WT EE - HD EE	Male	11	112.3512	15.5416	26	7.2291	**0.0000**
WT EE - WT EX	Male	11	72.0906	16.7118	26	4.3138	**0.0025**
WT EE - HD EX	Male	11	146.6424	18.7031	26	7.8406	**0.0000**
HD EE - WT EX	Male	11	-40.2605	18.7031	26	-2.1526	0.2931
HD EE - HD EX	Male	11	34.2912	16.7118	26	2.0519	0.3422
WT EX - HD EX	Male	11	74.5518	15.6770	26	4.7555	**0.0008**
WT SH - HD SH	Female	12	105.0372	16.3182	26	6.4368	**0.0000**
WT SH - WT EE	Female	12	-26.6132	17.5987	26	-1.5122	0.6598
WT SH - HD EE	Female	12	91.0398	20.1658	26	4.5146	**0.0015**
WT SH - WT EX	Female	12	21.6330	17.6503	26	1.2256	0.8205
WT SH - HD EX	Female	12	101.4865	20.1904	26	5.0265	**0.0004**
HD SH - WT EE	Female	12	-131.6504	20.1658	26	-6.5284	**0.0000**
HD SH - HD EE	Female	12	-13.9974	17.7413	26	-0.7890	0.9670
HD SH - WT EX	Female	12	-83.4042	20.1900	26	-4.1310	**0.0040**
HD SH - HD EX	Female	12	-3.5506	17.7936	26	-0.1995	1.0000
WT EE - HD EE	Female	12	117.6530	16.3182	26	7.2099	**0.0000**
WT EE - WT EX	Female	12	48.2461	17.6503	26	2.7335	0.1022
WT EE - HD EX	Female	12	128.0997	20.1904	26	6.3446	**0.0000**
HD EE - WT EX	Female	12	-69.4068	20.1900	26	-3.4377	**0.0218**
HD EE - HD EX	Female	12	10.4468	17.7936	26	0.5871	0.9910
WT EX - HD EX	Female	12	79.8536	16.3442	26	4.8857	**0.0006**
WT SH - HD SH	Male	12	114.1207	16.2660	26	7.0159	**0.0000**
WT SH - WT EE	Male	12	-62.9095	17.5987	26	-3.5747	**0.0158**
WT SH - HD EE	Male	12	63.8270	20.0608	26	3.1817	**0.0392**
WT SH - WT EX	Male	12	4.9342	17.7226	26	0.2784	0.9997
WT SH - HD EX	Male	12	93.8713	20.1904	26	4.6493	**0.0011**
HD SH - WT EE	Male	12	-177.0302	20.0608	26	-8.8247	**0.0000**
HD SH - HD EE	Male	12	-50.2937	17.5987	26	-2.8578	0.0792
HD SH - WT EX	Male	12	-109.1865	20.1904	26	-5.4079	**0.0002**
HD SH - HD EX	Male	12	-20.2494	17.7226	26	-1.1426	0.8590
WT EE - HD EE	Male	12	126.7365	16.2660	26	7.7915	**0.0000**
WT EE - WT EX	Male	12	67.8437	17.7226	26	3.8281	**0.0085**
WT EE - HD EX	Male	12	156.7808	20.1904	26	7.7651	**0.0000**
HD EE - WT EX	Male	12	-58.8928	20.1904	26	-2.9169	0.0700
HD EE - HD EX	Male	12	30.0443	17.7226	26	1.6953	0.5468
WT EX - HD EX	Male	12	88.9371	16.3954	26	5.4245	**0.0001**

6.2 Cumulative Link Mixed Model

6.2.1 Clasping Score

contrast	Housing	Week	estimate	SE	df	z.ratio	p.value
WT Female - HD Female	SH	6	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	SH	6	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	SH	6	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	SH	6	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	SH	6	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	SH	6	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EE	6	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EE	6	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EE	6	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EE	6	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EE	6	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EE	6	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EX	6	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EX	6	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EX	6	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EX	6	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EX	6	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EX	6	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	SH	7	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	SH	7	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	SH	7	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	SH	7	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	SH	7	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	SH	7	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EE	7	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EE	7	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EE	7	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EE	7	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EE	7	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EE	7	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EX	7	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EX	7	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EX	7	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EX	7	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EX	7	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EX	7	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	SH	8	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	SH	8	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	SH	8	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	SH	8	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	SH	8	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	SH	8	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EE	8	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EE	8	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EE	8	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EE	8	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EE	8	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EE	8	-0.8050	0.3069	Inf	-2.6227	**0.0433**

(continued)

contrast	Housing	Week	estimate	SE	df	z.ratio	p.value
WT Female - HD Female	EX	8	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EX	8	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EX	8	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EX	8	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EX	8	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EX	8	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	SH	9	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	SH	9	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	SH	9	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	SH	9	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	SH	9	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	SH	9	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EE	9	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EE	9	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EE	9	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EE	9	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EE	9	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EE	9	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EX	9	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EX	9	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EX	9	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EX	9	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EX	9	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EX	9	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	SH	10	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	SH	10	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	SH	10	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	SH	10	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	SH	10	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	SH	10	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EE	10	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EE	10	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EE	10	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EE	10	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EE	10	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EE	10	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EX	10	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EX	10	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EX	10	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EX	10	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EX	10	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EX	10	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	SH	11	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	SH	11	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	SH	11	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	SH	11	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	SH	11	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	SH	11	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EE	11	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EE	11	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EE	11	-1.4166	0.4382	Inf	-3.2325	**0.0067**

(continued)

contrast	Housing	Week	estimate	SE	df	z.ratio	p.value
HD Female - WT Male	EE	11	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EE	11	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EE	11	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EX	11	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EX	11	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EX	11	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EX	11	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EX	11	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EX	11	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	SH	12	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	SH	12	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	SH	12	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	SH	12	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	SH	12	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	SH	12	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EE	12	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EE	12	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EE	12	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EE	12	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EE	12	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EE	12	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - HD Female	EX	12	-0.8050	0.3069	Inf	-2.6227	**0.0433**
WT Female - WT Male	EX	12	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Female - HD Male	EX	12	-1.4166	0.4382	Inf	-3.2325	**0.0067**
HD Female - WT Male	EX	12	0.1933	0.4286	Inf	0.4511	0.9694
HD Female - HD Male	EX	12	-0.6116	0.3060	Inf	-1.9985	0.1885
WT Male - HD Male	EX	12	-0.8050	0.3069	Inf	-2.6227	**0.0433**

References

Lenth, Russell V. 2021. *Emmeans: Estimated Marginal Means, Aka Least-Squares Means.* https://CRAN.R-project.org/package=emmeans.

R session information

```
sessionInfo()
```

```
## R version 4.1.0 (2021-05-18)
## Platform: x86_64-apple-darwin17.0 (64-bit)
## Running under: macOS Big Sur 10.16
##
## Matrix products: default
## BLAS:   /Library/Frameworks/R.framework/Versions/4.1/Resources/lib/libRblas.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/4.1/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_AU.UTF-8/en_AU.UTF-8/en_AU.UTF-8/C/en_AU.UTF-8/en_AU.UTF-8
```

```
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
##  [1] gsubfn_0.7         proto_1.0.0        kableExtra_1.3.4   patchwork_1.1.1
##  [5] rstatix_0.7.0      lmerTest_3.1-3     lme4_1.1-27.1      Matrix_1.3-4
##  [9] viridis_0.6.1      viridisLite_0.4.0  ordinal_2019.12-10 tidyr_1.1.4
## [13] emmeans_1.7.0      jtools_2.1.4       TSA_1.3            xtable_1.8-4
## [17] sjPlot_2.8.9       dotwhisker_0.7.4   stargazer_5.2.2    nlme_3.1-153
## [21] car_3.0-11         carData_3.0-4      ggpubr_0.4.0       ggplot2_3.3.5
## [25] magrittr_2.0.1     readxl_1.3.1       dplyr_1.0.7        knitr_1.36
##
## loaded via a namespace (and not attached):
##  [1] TH.data_1.1-0       minqa_1.2.4         colorspace_2.0-2
##  [4] ggsignif_0.6.3      ellipsis_0.3.2      rio_0.5.27
##  [7] sjlabelled_1.1.8    estimability_1.3    ggstance_0.3.5
## [10] parameters_0.14.0   rstudioapi_0.13     farver_2.1.0
## [13] fansi_0.5.0         mvtnorm_1.1-2       xml2_1.3.2
## [16] codetools_0.2-18    splines_4.1.0       leaps_3.1
## [19] sjmisc_2.8.7        nloptr_1.2.2.2      ggeffects_1.1.1
## [22] broom_0.7.9         effectsize_0.5      compiler_4.1.0
## [25] httr_1.4.2          sjstats_0.18.1      backports_1.2.1
## [28] assertthat_0.2.1    fastmap_1.1.0       htmltools_0.5.2
## [31] tools_4.1.0         coda_0.19-4         gtable_0.3.0
## [34] glue_1.4.2          Rcpp_1.0.7          cellranger_1.1.0
## [37] vctrs_0.3.8         svglite_2.0.0       insight_0.14.4
## [40] xfun_0.26           stringr_1.4.0       openxlsx_4.2.4
## [43] rvest_1.0.1         lifecycle_1.0.1     MASS_7.3-54
## [46] zoo_1.8-9           scales_1.1.1        hms_1.1.1
## [49] sandwich_3.0-1      yaml_2.2.1          curl_4.3.2
## [52] gridExtra_2.3       pander_0.6.4        stringi_1.7.5
## [55] ucminf_1.1-4        bayestestR_0.11.0   boot_1.3-28
## [58] zip_2.2.0           rlang_0.4.11        pkgconfig_2.0.3
## [61] systemfonts_1.0.2   evaluate_0.14       lattice_0.20-45
## [64] purrr_0.3.4         labeling_0.4.2      tidyselect_1.1.1
## [67] R6_2.5.1            generics_0.1.0      multcomp_1.4-17
## [70] DBI_1.1.1           pillar_1.6.3        haven_2.4.3
## [73] foreign_0.8-81      withr_2.4.2         mgcv_1.8-37
## [76] survival_3.2-13     datawizard_0.2.1    abind_1.4-5
## [79] tibble_3.1.5        performance_0.8.0   modelr_0.1.8
## [82] crayon_1.4.1        utf8_1.2.2          rmarkdown_2.11
## [85] locfit_1.5-9.4      grid_4.1.0          data.table_1.14.2
## [88] forcats_0.5.1       digest_0.6.28       webshot_0.5.2
## [91] numDeriv_2016.8-1.1 munsell_0.5.0       tcltk_4.1.0
```