For Women:

Muscle (measured as grip strength) the covariance coverage is limited at 11 time points (0.70). Will not run with 14 waves, 13, or 12. Will run with 11 waves and covariance coverage dropped. Runs with **10.**

* Covariance coverage also needs to be dropped for some cognitive outcomes with 10 waves, still runs at .05 for digit ordering with 10 waves.
* Covariance coverage is at 0.056 (lowest) with 10 waves. Past 10 waves the covariance coverage drops below .05. Cognitive measures do not seem to be the issue.
* When comparing the two grip strength models for grip strength and category fluency with 10 and 11 waves there was only one difference between them, the correlation between SP and SC became insignificant with 11 waves but was significant with 10 waves.

Grip Strength Number of

Variable Observations Variance

P1 860 154.056

P2 617 146.923

P3 503 134.693

P4 399 131.151

P5 279 148.188

P6 184 136.184

P7 170 154.262

P8 186 128.555

P9 199 141.041

P10 145 144.037

P11 102 110.020

P12 49 95.114

P13 23 62.100

P14 23 89.013

P15 16 57.043

P16 11 34.119

P17 2 12.250

\*\*P18 0

\*\*P19 0

\*\*P20 0

\*\*P21 0

C1 961 76.074

C2 820 81.703

C3 695 87.007

C4 578 89.909

C5 474 91.749

C6 378 93.177

C7 345 116.042

C8 291 103.425

C9 245 129.334

C10 189 97.883

C11 128 120.970

C12 70 114.808

C13 32 132.772

C14 26 124.899

C15 18 198.312

C16 13 102.864

C17 2 6.250

\*\*C18 0

\*\*C19 0

\*\*C20 0

\*\*C21 0

BAGE 1010 63.201

***Walking*** covariance coverage is quite low for some variable combinations (0.03 and 0.04) but will run with 12 waves. It does not converge for digit ordering even with covariance coverage at 0.01 for 13 waves due to sparse data.

12 wave walking and digit ordering model results:

* Even just going from 11 waves to 12 waves of included data can change the outcome. In the model with 11 waves the SP and IP relationship is not significant but then with 12 waves it is. All of the other relations remain the same for both the 11 wave and the 12 wave models.

**Pulmonary** the covariance coverage drops below 0.10 at after the **5th time** point. However, at time point 6 the covariance coverage 0.079. At the 6th time point (p6) it is 0.051. Covariance coverage remains above 0.05 until the 11th wave (P11) when it drops to 0.028. Will not run with 12 waves or 11 waves. Does run with **10 waves.**

Run the pulmonary measure for women and each cog outcome.

Pulmonary Number of

Variable Observations Variance

P1 847 0.201

P2 600 0.191

P3 482 0.175

P4 337 0.186

P5 272 0.168

P6 181 0.176

P7 169 0.172

P8 186 0.178

P9 196 0.166

P10 146 0.160

P11 101 0.216

P12 48 0.110

P13 23 0.170

P14 23 0.119

P15 16 0.102

P16 10 0.139

P17 2 0.166

\*\*P18 0

\*\*P19 0

\*\*P20 0

\*\*P21 0

For men:

Muscle covariance coverage decreases to .071 at wave 6. Wave 5 has p5 with good coverage. Tried to run with 12 waves. Model will converge with 11 waves if the covariance coverage is dropped to .01.

Ran age only grip strength and category fluency with 11 waves of data and the covariance coverage at .01 the model ran and there were some differences in significance from the model with 5 waves only. The relation between the slope of category fluency and the slope of grip strength. Model with 10 waves will not run, model with 9 waves did not run. Model with 8 waves did run but the slope correlations were no longer significant.

Grip strength and category fluency

Number of

Variable Observations Variance

P1 295 379.729

P2 207 299.037

P3 162 311.172

P4 146 311.095

P5 96 267.945

P6 57 262.831

P7 48 335.330

P8 62 315.156

P9 65 275.691

P10 47 274.081

P11 33 382.347

P12 14 264.118

P13 4 207.137

P14 4 25.137

P15 2 1.266

P16 2 91.840

\*\*P17 0

\*\*P18 0

\*\*P19 0

\*\*P20 0

\*\*P21 0

C1 336 82.997

C2 270 82.290

C3 228 78.398

C4 188 71.442

C5 166 88.104

C6 125 83.772

C7 109 63.644

C8 90 76.841

C9 77 75.811

C10 54 84.603

C11 41 81.315

C12 20 107.088

C13 5 36.640

C14 4 86.750

C15 2 121.000

C16 2 56.250

\*\*C17 0

\*\*C18 0

\*\*C19 0

\*\*C20 0

\*\*C21 0

BAGE 351 51.958

**Walking**

Walking covariance coverage falls below 0.01 at wave 13. Will converge at 12 waves with covariance coverage limit dropped. For digit ordering. Sig. Positive association between slopes at 12 waves. Some of the covariance coverage values are quite low (0.04). When only 11waves is included the results change substantially.

Walking Number of

Variable Observations Variance

P1 307 0.047

P2 234 0.049

P3 185 0.045

P4 154 0.041

P5 145 0.045

P6 105 0.052

P7 83 0.043

P8 69 0.046

P9 45 0.035

P10 31 0.030

P11 32 0.034

P12 18 0.054

P13 5 0.037

P14 2 0.010

\*\*P15 1 0.000

P16 2 0.016

\*\*P17 0

\*\*P18 0

\*\*P19 0

\*\*P20 0

\*\*P21 0

C1 332 2.498

C2 267 2.876

C3 225 2.785

C4 186 2.711

C5 161 2.262

C6 121 2.125

C7 110 3.342

C8 89 2.957

C9 74 2.691

C10 54 3.084

C11 39 2.895

C12 19 2.244

C13 5 5.360

C14 3 1.556

C15 2 0.250

\*\*C16 2 0.000

\*\*C17 0

\*\*C18 0

\*\*C19 0

\*\*C20 0

\*\*C21 0

BAGE 351 51.958

**Pulmonary**

For pulmonary, covariance coverage falls below at wave 6, still at .078. Cut-off at wave 5! Models with 10 waves of data will not run even with the covariance coverage lowered. Warning about single covariance matrix and sparse data. 9 waves will also not converge. Was able to get a model with 7 waves of data to run for pulmonary and digit ordering but the covariance coverage had to be dropped to 0.04. For digit ordering this did not make a difference with regards to the finding any significant association.

Running pulmonary models with another digits back just to check. Will not run with 9 waves or with 8 waves. Will run with ***7 waves*** covariance coverage at .01.

Pulmonary will not run with grip with 7 waves of data.

Pulmonary Number of

Variable Observations Variance

P1 293 0.431

P2 203 0.310

P3 162 0.359

P4 120 0.306

P5 96 0.294

P6 57 0.460

P7 48 0.270

P8 62 0.324

P9 63 0.272

P10 47 0.237

P11 33 0.207

P12 14 0.193

P13 4 0.287

P14 4 0.371

P15 2 0.029

P16 2 0.001

C1 332 2.498

C2 267 2.876

C3 225 2.785

C4 186 2.711

C5 161 2.262

C6 121 2.125

C7 110 3.342

C8 89 2.957

C9 74 2.691

C10 54 3.084

C11 39 2.895

C12 19 2.244

C13 5 5.360

C14 3 1.556

C15 2 0.250

\*\*C16 2 0.000

BAGE 351 51.958

Pulmonary models run for men to with each cognitive outcomes.

**Models Run**

**With MAP only**

B1\_female\_aeh\_muscle\_executive\_grip\_digitsback

B1\_female\_aeh\_muscle\_speed\_grip\_digitsymbol

B1\_female\_aeh\_muscle\_reasoning\_grip\_matrices

B1\_female\_aeh\_muscle\_knowledge\_grip\_nart

B1\_female\_aeh\_muscle\_visuospatial\_grip\_lineOrientation

B1\_female\_aeh\_pulmonary\_executive\_fev\_digitsback

B1\_female\_aeh\_pulmonary\_knowledge\_fev\_nart

B1\_female\_aeh\_pulmonary\_reasoning\_fev\_matrices

B1\_female\_aeh\_pulmonary\_speed\_fev\_digitsymbol

B1\_female\_aeh\_pulmonary\_visuospatial\_fev\_lineOrientation

B1\_female\_aeh\_pulmonary\_mental\_fev\_mmse

B1\_female\_aeh\_pulmonary\_language\_fev\_bnt

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| MAP | Pulmonary (fev) | | | Muscle (grip) | | Walking |
| 20 | age | aeh | aehplus | aeh | aehplus |  |
| cts\_bname Boston Naming | F | F M | F M | F M | F M |  |
| cts\_catflu Category Fluency | F | F M | F M | F M | F M |  |
| cts\_db Digits Backwards |  | F M | F M | F M | F M |  |
| cts\_delay Logical Memory IIa |  | F M | F M | F M | F M |  |
| cts\_df Digits Forwards |  | F M | F M | F M | F M |  |
| cts\_doperf Digit Ordering |  | F M | F M | F M | F M |  |
| cts\_ebdr East Boston Story - delayed recall |  | F M | F M | F M | F M |  |
| cts\_ebmt East Boston Story - immediate |  | F M | F M | F M | F M |  |
| cts\_idea Complex Ideas |  | F M | F M | F M | F M |  |
| cts\_lopair Line Orientation |  | F M | F M | F M | F M |  |
| cts\_mmse30 MMSE |  | F M | F M | F M | F M |  |
| cts\_nccrtd Number Comparison – 2014 |  | F M | FM | F M | F M |  |
| cts\_pmat Progressive Matrices |  | F M | F M | F M | F M |  |
| cts\_read\_nart Reading Test - NART |  | F M | FM | F M | F M |  |
| cts\_sdmt Symbol Digit Modalities |  | F M | F M | F M | F M |  |
| cts\_story Logical Memory Ia - immediate – 2014 |  | F M | F M | F M | F M |  |
| cts\_wli Word List I - immediate |  | F M | F M | F M | F M |  |
| cts\_wlii Word List II - delayed |  | F M | F M | F M | F M |  |
| cts\_wliii Word List III - recognition |  | F M | F M | F M | F M |  |
| fruits Category fluency-fruits and vegetables |  | N/A | N/A | N/A |  |  |