**Supplementary Information 1.** Correlation matrix (Pearson’s *r*) and descriptive statistics for all measures. All complete pairs of observations of the variables were used to calculate correlation coefficients. Unit for all associative and item memory tests is proportion hits – proportion false alarms (proportion). Unit for all cortical region of interest is cortical thickness (mm). Unit for the hippocampus is volume (mm3), provided as unadjusted, *HC(raw)*, and as adjusted for total intracranial volume, *HC(adj)*. Unit for total intracranial volume is volume (mm3).

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**Supplementary Information 2.** Standardized factor loadings for the measures in the cognitive model.

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**Supplementary Information 3.** Results from follow-up analyses of the cognitive model when including age, regressing age on the latent associative memory and item memory factors. The left-hand table includes standardized parameter estimates (β) for the correlations between age and item memory (ITEM) and associative memory (AM), as well as inferential statistics for the model comparisons that tested the significance of the individual correlations, by contrasting to models where the respective correlation was fixed to zero, and between these correlations, by contrasting to a model where the two correlations are fixed to be equal. The right-hand table includes standardized factor loadings for the measures in the cognitive model when including age as a variable.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | *β* | χ² | *p* |
| AM-age correlation | -0.145 | 2.6782 | 0.1017 |
| ITEM-age correlation | -0.152 | 0.84956 | 0.3567 |
| AM-age vs ITEM-age correlation |   | 0.0012993 | 0.9712 |

|  |  |  |
| --- | --- | --- |
| **Latent construct** | **Indicator** | **Loadings** |
| Associative | AM1 | 0.798 |
|  | AM2 | 0.902 |
|  | AM3 | 0.876 |
|  | IT1 | 0.480 |
|  | IT2 | 0.843 |
|  | IT3 | 0.639 |
| Item | IT1 | 0.650 |
|  | IT2 | 0.193 |
|  | IT3 | 0.549 |
| AM1 | a-fn 1 | 0.661 |
|  | a-fn 2 | 0.830 |
| AM2 | a-ww 1 | 0.816 |
|  | a-ww 2 | 0.837 |
| AM3 | a-pp 1 | 0.769 |
|  | a-pp 2 | 0.888 |
| IT1 | i-fn 1 | 0.600 |
|  | i-fn 2 | 0.882 |
| IT2 | i-ww 1 | 0.789 |
|  | i-ww 2 | 0.821 |
| IT3 | i-pp 1 | 0.679 |
|   | i-pp 2 | 0.734 |

**Supplementary Information 4.** Results from follow-up analyses of the brain model when including age, allowing age to correlate with associative memory, item memory and the brain variable under investigation. The table includes model fit indices (χ2, CFI, RMSEA) and standardized parameter estimates (β) for the correlations between the different regions of interest and item memory (ITEM) and associative memory (AM), as well as inferential statistics for the model comparisons that tested the significance of and between these correlations. Note that estimation for the entorhinal cortex and the hippocampus provided an improper solution and results for these regions are therefore not included in the table. Significant results are highlighted in bold.

