For the physical variable Grip the study ILSE has 41 models (just for keeping the α-inflation in mind). Do we need a correction to avoid the inflation?

**Intercept**:

Descriptive:

Male: Verbal fluency: In the male “a” model and in the male “aehplus” model (the “aeh” is not available) there is a significant (<.05) and a slightly significant (<.10) small positive correlation (.24) between the intercepts.

Male: Knowledge, Block Design, Spatial ability: for these variables there is in the male “a” model slightly to strong significant correlations for the intercept. With adding more covariate (“aeh” and further) these correlations vanish.

Male: Symbol Substitution: There is a slightly significant correlation for the intercepts in the “aeh” (.23) and “aehplus” model (.22) (“a” model not available). Even if the significance in only below .10 there could be pattern over different models (this is nice to interpret when all data is available).

Female: there is a slightly significant correlation of the intercepts for the picture completion (-.22) task in the “a” model and for the spatial ability task in the “aehplus” model (-.20). But since these do not occur elsewhere and are slightly significant there is a possibility that these are random results. But we can keep in mind that these correlations are negative.

Summary:

* For males, the intercept of verbal fluency and Speed test (digit symbol substitution) could show correlations for the different models (but only slightly significant). The starting value in knowledge and reasoning tests do not correlate with the initial level in hand grip (especially when we are adding covariates). For females no intercept patterns over the models were found.

**Slope:**

Summary:

* There are no significant correlation between the slope of any cognitive domain and the slope of the physical measurement “grip”. Therefor after an age of 63 the change in the strength of our grip doesn’t predict the change in any physical measure over time significantly (or the other way).

**Residual:**

Descriptive:

“a”-model: there are no significant correlations of the residuals in our bivariate models. These occur with adding more covariates.

Female: Spatial ability: only in the “aeh” model there is a slight significant correlation of the residuals

Block design test: in the “aeh” and “aehplus” models for females there are slighty significant correlations (.16 and .15) und for the males strong significant (below .01) correlations (.21 and .21).

Summary:

* With controlling more covariates (especially education and height) some of the residuals begin to correlate. This could be because of a third variable which influence got lost in the “a” model 1) because of the bigger variance from the not controlled education or height; or 2) because the third variable is also correlated with the covariates education or height.

**Conclusion:**

With the ILSE data it is hard to say if there are correlations between physical and cognitive variables (the relations could be non-linear for example). But through the reasoning test “Block Design” we could find latent variables that are. It is interesting that in the models with more covariates the residuals begin to correlate and that there is a gender difference in how strong the correlations are. Possible thoughts on that could be that the Block Design test is not only a measurement for reasoning but also for spatial thinking (where a gender difference could exist) and this could correlate with hand grip. But for the spatial ability test there are no significant correlations (this test measure spatial ability and reasoning, too). It is also possible that for the male sample the handgrip variable is correlated with other life variables than for females. Since we only have few academic degrees in our sample it could be that males were more likely to work in the craft sector and trained there their hand grip. With the end of the work life the handgrip and other things (etc. social life) declined. But these are just some thought plays. I am looking forward to the complete data, so I can compare the significance pattern with the bivariate models for “timed up and go”.