**Supplementary Data Table 2. The correlation between changes in whole blood EPA and DHA and changes in cognitive test performance a**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | |  | |  |  |  |  |  |  |
|  | n | | Estimate b | | P EPA | P Sex × EPA |  | Estimate b | P DHA | P Sex × DHA |
| *Overall test performance patterns* c | |  |  |  | |  |  | |  |  |
| School performance | 633 | | -0.15 (-0.32; 0.02) | | 0.083 | 0.64 |  | -0.09 (-0.17; -0.01) | 0.034 | 0.76 |
| Reading comprehension | 633 | | -0.21 (-0.42; 0.01) | | 0.041 | 0.38 |  | -0.002 (-0.10; 0.10) | 0.96 | 0.68 |
| *D2-test of attention* |  | |  | |  |  |  |  |  |  |
| Concentration performance (items) | 650 | | -1.4 (-4.8; 2.0) | | 0.41 | 0.64 |  | 0.50 (-1.08; 2.08) | 0.54 | 0.85 |
| Processing speed (items) | 650 | | -2.1 (-10.3; 6.1) | | 0.62 | 0.70 |  | 3.06 (-0.78; 6.90) | 0.12 | 0.50 |
| Total error % | 650 | | 1.20 [1.05; 1.37] | | 0.006 | 0.89 |  | 1.11 [1.05; 1.18] | <0.001 | 0.43 |
| Inattention error % | 650 | | 1.24 [1.09; 1.43] | | 0.002 | 0.97 |  | 1.12 [1.06; 1.20] | <0.001 | 0.82 |
| Impulsivity error % | 650 | | 0.84 [0.57;1.24] | | 0.39 | 0.92 |  | 1.07 [0.91; 1.26] | 0.42 | 0.039 |
| *Sentence Reading Test* |  | |  | |  |  |  |  |  |  |
| Reading speed (no. of sentences read) | 669 | | 1.16 [1.08; 1.25] | | <0.001 | 0.057 |  | 1.06 [1.03; 1.10] | <0.001 | 0.18 |
| Number correct (sentences) | 669 | | 1.21 [1.12; 1.31] | | <0.001 | 0.26 |  | 1.04 [1.002; 1.08] | 0.038 | 0.59 |
| % correct (of read) | 669 | | 1.55 [1.25; 1.93] | | <0.001 | 0.94 |  | 0.87 [0.78; 0.96] | 0.006 | 0.30 |
| *Math test* |  | |  | |  |  |  |  |  |  |
| Number correct (sentences) | 650 | | 0.99 [0.89; 1.10] | | 0.80 | 0.63 |  | 1.02 [0.97; 1.07] | 0.44 | 0.62 |

w/w%, percentage of total fatty acids.

a Analyses predicting change in test performance were performed using hierarchical mixed models with school, year-group (within each school), class, and individual as random effects. The model included baseline values of test outcome, baseline EPA+DHA, EPA+DHA at visit 2/3, visit, sex, baseline age, grade, household education, month of baseline test, immigrant/descendant, baseline BMI and baseline total physical activity (counts per min).

b Estimates are presented as β [95%CI] or OR (95%CI), as appropriate.

c Test performance patterns were derived from all test outcomes (except from inattention and impulsivity error %) at all available time points using PCA. The two chosen components were named by the variables with most negative scores in the loading plot, i.e. a negative estimate indicates an improvement and a positive estimate indicates a deterioration.