

Supplementary Material

Supplemental Table S1. Descriptive data for maternal fatty acid concentrations, Alberta, Canada, 2009-2012.

| Fatty Acid Characteristics | Mean (SD, range) |
|--|--------------------------------|
| C20:4n6^a Fatty Acids (ug/mL) (n = 291) | 116.1 (46.4; 24.0 – 284.3) |
| C20:5n3^b Fatty Acids (ug/mL) (n = 291) | 8.6 (7.3; 1.0 – 55.6) |
| C22:5n3^c Fatty Acids (ug/mL) (n = 291) | 7.5 (4.2; 1.2 – 23.8) |
| C22:6n3^d Fatty Acids (ug/mL) (n = 291) | 43.0 (25.3; 6.3 – 177.9) |
| Total Omega-6 Fatty Acids (ug/mL) (n = 291) | 503.5 (158.1; 167.8 – 1095.72) |
| Total Omega-3 Fatty Acids (ug/mL) (n = 291) | 71.6 (37.3; 13.6 – 279.1) |
| Total Long Chain (ug/mL) (n = 291) | 292.1 (100.5; 78.8 – 643.8) |

^a C20:4n6 = arachidonic acid (ARA)

^b C20:5n3 = eicosapentaenoic acid (EPA)

^c C22:5n3 = docosapentaenoic acid (DPA)

^d C22:6n3 = docosahexaenoic acid (DHA)

Supplemental Table S2. Correlation analyses for the fatty acids considered as covariates for the regression analyses, Alberta, Canada, 2009-2012.

| | C20:4n6 Fatty Acids (ug/mL) | C20:5n3^b Fatty Acids (ug/mL) | C22:5n3^c Fatty Acids (ug/mL) | C22:6n3^d Fatty Acids (ug/mL) | Total Omega-6 Fatty Acids (ug/mL) | Total Omega-3 Fatty Acids (ug/mL) | Total Long Chain (ug/mL) |
|--|--|--|--|--|--|--|---------------------------------|
| C20:5n3^b Fatty Acids (ug/mL) | 0.41 (p<0.001) | | | | | | |
| C22:5n3^c Fatty Acids (ug/mL) | 0.77 (p<0.001) | 0.70 (p<0.001) | | | | | |
| C22:6n3^d Fatty Acids (ug/mL) | 0.83 (p<0.001) | 0.68 (p<0.001) | 0.88 (p<0.001) | | | | |
| Total Omega-6 Fatty Acids (ug/mL) | 0.88 (p<0.001) | 0.33 (p<0.001) | 0.70 (p<0.001) | 0.76 (p<0.001) | | | |
| Total Omega-3 Fatty Acids (ug/mL) | 0.80 (p<0.001) | 0.76 (p<0.001) | 0.92 (p<0.001) | 0.98 (p<0.001) | 0.76 (p<0.001) | | |
| Total Long Chain (ug/mL) | 0.90 (p<0.001) | 0.51 (p<0.001) | 0.79 (p<0.001) | 0.85 (p<0.001) | 0.85 (p<0.001) | 0.84 (p<0.001) | |

^aC20:4n6 = arachidonic acid (ARA)

^b C20:5n3 = eicosapentaenoic acid (EPA)

^c C22:5n3 = docosapentaenoic acid (DPA)

^d C22:6n3 = docosahexaenoic acid (DHA)

Supplemental Table S3. Point estimate E-values for the associations between the predictor variables and outcome variables at 3-5 years of age, Alberta, Canada, 2009-2017.

| Predictors | Outcomes | Point Estimate E-Value |
|--------------------------------|---|-------------------------------|
| Maternal Folate Status | | |
| | WPPSI-IV ^{CND} Fluid Reasoning Index (FRI) | 1.12 |
| | NEPSY-II Phonological Processing | 1.31 |
| | Dimensional Change Card Sort (DCCS) | 2.44 |
| Maternal Choline Status | | |
| | NEPSY-II Speeded Naming | 1.25 |
| | Dimensional Change Card Sort (DCCS) | 2.94 |
| Folate X Choline | | |
| | Dimensional Change Card Sort (DCCS) | 3.90 |

Supplemental Table S4. Descriptive data for neurodevelopmental outcomes in children 3 to 5 years of age, Alberta, Canada, 2012-2017.

| Neurodevelopmental Outcomes | Mean (SD; range); n (%) |
|--|--------------------------|
| Intelligence | |
| WPPSI-IV^{CDN}a Full Scale IQ (n = 306) | 105.11 (13.19; 65 – 142) |
| WPPSI-IV^{CDN} Verbal Comprehension Index (n = 308) | 107.30 (13.25, 68 – 135) |
| WPPSI-IV^{CDN} Visual Spatial Index (n = 305) | 103.95 (14.29; 63 – 145) |
| WPPSI-IV^{CDN} Fluid Reasoning Index (n = 196)^b | 99.65 (16.53; 63 – 136) |
| WPPSI-IV^{CDN} Working Memory Index (n = 304) | 105.82 (14.43; 50 – 146) |
| WPPSI-IV^{CDN} Processing Speed Index (n = 194)^b | 100.31 (11.22; 66 – 133) |
| Language | |
| NEPSY-II Phonological Processing (n = 302) | 10.23 (3.19; 1 – 17) |
| NEPSY-II Speeded Naming (n = 301) | 12.06 (2.83; 2 – 19) |
| Memory | |
| NEPSY-II Memory for Designs (n = 301) | 9.87 (2.82; 2 – 19) |
| NEPSY-II Narrative Memory (n = 299) | 10.15 (2.98; 2 – 19) |
| NEPSY-II Sentence Repetition (n = 294) | 11.04 (3.12; 1 – 19) |

Motor

| | |
|--|----------------------|
| MABC-2^c Total Test (n = 301) | 9.51 (2.99; 3 – 19) |
| MABC-2 Manual Dexterity (n = 303) | 8.72 (3.26; 1 – 18) |
| MABC-2 Aiming & Catching (n = 302) | 9.63 (3.10; 2 – 19) |
| MABC-2 Balance Standard Score (n = 301) | 10.62 (2.88; 5 – 18) |

Executive Function

| | |
|-----------------------------------|----------------------|
| NEPSY-II Statue (n = 294) | 9.96 (3.30; 1 – 16) |
| Boy-Girl Stroop (n = 300) | 10.94 (4.75; 0 – 16) |
| Spatial Span (n = 303) | 2.70 (1.07; 0 – 6) |
| DCCS^d (n = 304) | |
| Pass | 200 (65.79) |
| Fail | 104 (34.21) |

^aWPPSI-IV = Wechsler Preschool and Primary Scales of Intelligence - 4th Edition: Canadian

^bIncludes only children who are 4:0 to 4:11 years of age

^cMovement Assessment Battery for Children, Second Edition

^dDCCS = Dimensional Change Card Sort

Supplemental Table S5. Unadjusted regression models (95% confidence intervals, *p* values) for the associations between maternal prenatal folate, choline, maternal nutrients, and other covariates and WPPSI-IV^{CND} scores in children 3 to 5 years of age, Alberta, Canada, 2009-2017.

| | Full Scale IQ | Verbal | Visual Spatial | Fluid Reasoning | Working | Processing Speed |
|-------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|--------------------------|--------------------------|
| | | Comprehension | Index | Index | Memory Index | Index |
| | | Index | | | | |
| | | <i>B</i> (95% CI) | <i>B</i> (95% CI) | <i>B</i> (95% CI) | <i>B</i> (95% CI) | <i>B</i> (95% CI) |
| Maternal Folate | 0.11 (-0.02, 0.23) ^b | 0.04 (-0.08, 0.17) | 0.12 (-0.01, 0.25) ^b | 0.21 (0.04, 0.37) ^a | 0.07 (-0.06, 0.20) | 0.01 (-0.15, 0.16) |
| Status | | | | | | |
| Maternal Choline | -0.06 (-0.17, 0.06) | -0.03 (-0.14, 0.09) | -0.03 (-0.15, 0.09) | 0.02 (-0.13, 0.17) | -0.06 (-0.18, 0.06) | -0.01 (-0.15, 0.13) |
| Intake | | | | | | |
| Maternal | | | | | | |
| Nutrients | | | | | | |
| Ferritin | -0.07 (-0.19, 0.06) | -0.04 (-0.17, 0.08) | 0.04 (-0.09, 0.17) | -0.10 (-0.24, 0.07) | -0.03 (-0.16, 0.10) | -0.04 (-0.19, 0.11) |
| Vitamin B12 | -0.03 (-0.16, 0.10) | -0.02 (-0.15, 0.10) | -0.08 (-0.21, 0.06) | -0.06 (-0.23, 0.11) | 0.01 (-0.12, 0.15) | 0.07 (-0.09, 0.23) |
| Hemoglobin | -0.06 (-0.18, 0.06) | -0.10 (-0.23, 0.02) ^b | 0.03 (-0.10, 0.16) | -0.14 (-0.31, 0.02) ^b | -0.06 (-0.19, 0.07) | 0.07 (-0.08, 0.23) |

| | | | | | | |
|---------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Omega-3 Fatty Acids | -0.02 (-0.15, 0.10) | 0.02 (-0.11, 0.15) | 0.01 (-0.12, 0.14) | -0.17(-0.30,0.01) ^b | 0.06 (-0.07, 0.19) | -0.01(-0.15, 0.14) |
| Magnesium | 0.01 (-0.12, 0.14) | 0.08 (-0.04, 0.21) ^b | -0.12(-0.25,0.02) ^b | 0.004(-0.17, 0.18) | -0.004(-0.14,0.13) | 0.26 (0.09, 0.41) ^a |
| Copper | 0.05 (-0.08, 0.19) | 0.08 (-0.04, 0.23) ^b | 0.04 (-0.10, 0.18) | 0.04 (-0.15, 0.24) | 0.09 (-0.05, 0.24) ^b | -0.01 (-0.20, 0.17) |
| Zinc | 0.01 (-0.13, 0.14) | -0.03 (-0.17, 0.11) | 0.03 (-0.11, 0.18) | -0.01 (-0.20, 0.19) | 0.06 (-0.09, 0.20) | -0.18(-0.38,0.02) ^a |
| Selenium | 0.12 (-0.02, 0.27) ^b | 0.17 (0.03, 0.32) ^a | 0.10 (-0.04, 0.25) ^b | 0.03 (-0.18, 0.24) | -0.07 (-0.23, 0.07) | -0.17 (0.39,0.01) ^b |
| Other Covariates | | | | | | |
| Race and Ethnicity^c | 0.01 (-0.13, 0.15) | -0.06 (-0.21, 0.07) | -0.03 (-0.17, 0.12) | 0.10 (-0.08, 0.28) | -0.08 (-0.22, 0.06) | -0.04 (-0.20, 0.13) |
| Education^d | 0.15 (0.02, 0.27) ^a | 0.16 (0.04, 0.29) ^a | 0.11 (-0.02, 0.23) ^b | 0.12 (-0.05, 0.27) ^a | 0.01 (-0.12, 0.14) | 0.03 (-0.12, 0.18) |
| Income^e | 0.18 (0.06, 0.29) ^a | 0.22 (0.09, 0.33) ^a | 0.14 (0.01, 0.26) ^a | 0.10 (-0.06, 0.24) | 0.09 (-0.04, 0.21) ^b | 0.25 (0.09, 0.37) ^a |
| Parity^f | 0.07 (-0.06, 0.21) | 0.03 (-0.10, 0.17) | 0.03 (-0.11, 0.17) | -0.001(-0.18,0.18) | 0.11 (-0.03, 0.25) ^b | 0.13 (-0.04, 0.30) ^b |
| Delivery Mode^g | -0.02 (-0.14, 0.10) | -0.08(-0.20,0.04) ^b | 0.01 (-0.12, 0.13) | -0.02 (-0.18, 0.14) | 0.06 (-0.07, 0.18) | 0.07 (-0.08, 0.22) |
| Child | 0.01 (-0.12, 0.14) | -0.03 (-0.16, 0.10) | -0.01 (-0.15, 0.12) | 0.07 (-0.11, 0.24) | -0.04 (-0.17, 0.10) | 0.02 (-0.14, 0.18) |
| Birthweight | | | | | | |
| Maternal Age at Birth | -0.06 (-0.20, 0.07) | -0.07 (-0.20, 0.07) | 0.02 (-0.12, 0.16) | -0.02 (-0.19, 0.16) | -0.03 (-0.17, 0.12) | -0.10 (-0.26, 0.07) |
| Pre-Pregnancy | -0.20(-0.34,0.08) ^a | -0.16(-0.30,-0.04) ^a | -0.17(-0.32,0.04) ^a | -0.12(-0.29,0.05) ^b | -0.22(-0.37, -.09) ^a | -0.16(-0.31, .00) ^b |

BMI^h

| | | | | | | |
|------------------------------|---------------------------------|---------------------------------|--------------------|--------------------|---------------------------------|--------------------------------|
| Child Sexⁱ | 0.10 (-0.02, 0.22) ^b | 0.11 (-0.01, 0.24) ^b | 0.06 (-0.06, 0.19) | 0.09 (-0.08, 0.25) | 0.10 (-0.02, 0.23) ^b | 0.28 (0.12, 0.43) ^a |
|------------------------------|---------------------------------|---------------------------------|--------------------|--------------------|---------------------------------|--------------------------------|

^a $p \leq 0.05$ ^b $p \leq 0.20$ ^cWhite as reference group^dLess than high school diploma/completed high school diploma/trade/technical as reference group^eIncome < \$70K as reference group^fNo prior children as reference group^gVaginal delivery as reference group^hBMI = Body Mass IndexⁱMale as reference group

Supplemental Table S6. Unadjusted regression models (95% confidence intervals, *p* values) for the associations between maternal prenatal folate, choline, maternal nutrients, and other covariates, and language and memory scores on the NEPSY-II in children 3 to 5 years of age, Alberta, Canada, 2009-2017.

| | Phonological Processing | Speeded Naming | Memory for Designs | Narrative Memory | Sentence Repetition |
|---------------------------|--------------------------------|-----------------------------------|----------------------------------|--------------------------|---------------------------------|
| | <i>B</i> (95% CI) | <i>B</i> (95% CI) | <i>B</i> (95% CI) | <i>B</i> (95% CI) | <i>B</i> (95% CI) |
| Maternal Folate | 0.20 (0.07, 0.33) ^a | 0.08 (-0.05, 0.21) | 0.13 (-0.002, 0.27) ^b | 0.05 (-0.09, 0.19) | 0.01 (-0.12, 0.14) |
| Status | | | | | |
| Maternal Choline | 0.003 (-0.12, 0.13) | -0.13 (-0.25, -0.01) ^a | -0.11 (-0.24, 0.02) ^b | -0.04 (-0.17, 0.08) | -0.02 (-0.14, 0.11) |
| Intake | | | | | |
| Maternal Nutrients | | | | | |
| Ferritin | -0.04 (-0.17, 0.09) | -0.01 (-0.14, 0.12) | -0.02 (-0.16, 0.12) | -0.03 (-0.17, 0.11) | -0.03 (-0.16, 0.11) |
| Vitamin B12 | 0.01 (-0.13, 0.14) | 0.09 (-0.04, 0.23) ^b | -0.02 (-0.16, 0.12) | <0.00 (-0.14, 0.14) | 0.06 (-0.08, 0.20) |
| Hemoglobin | -0.01 (-0.14, 0.12) | 0.004 (-0.13, 0.13) | <0.00 (-0.14, 0.13) | -0.08 (-0.22, 0.05) | -0.01 (-0.14, 0.13) |
| Omega-3 Fatty | -0.06 (-0.19, 0.07) | 0.01 (-0.12, 0.14) | -0.04 (-0.18, 0.10) | 0.03 (-0.11, 0.17) | -0.003 (-0.14, 0.13) |
| Acids | | | | | |
| Magnesium | 0.01 (-0.12, 0.14) | 0.002 (-0.13, 0.14) | 0.02 (-0.12, 0.16) | -0.05 (-0.19, 0.09) | 0.11 (-0.03, 0.24) ^b |

| | | | | | |
|---------------------------------------|----------------------------------|---------------------------------|------------------------------------|----------------------------------|-----------------------------------|
| Copper | 0.05 (-0.09, 0.19) | 0.06 (-0.07, 0.21) | 0.08 (-0.06, 0.24) | 0.07 (-0.07, 0.22) | 0.04 (-0.10, 0.19) |
| Zinc | 0.08 (-0.07, 0.22) | -0.04 (-0.19, 0.10) | 0.06 (-0.08, 0.22) | -0.01 (-0.16, 0.14) | -0.02 (-0.17, 0.12) |
| Selenium | -0.01 (-0.16, 0.14) | 0.09 (-0.06, 0.24) | -0.12 (-0.28, 0.03) ^b | 0.05 (-0.11, 0.21) | -0.003 (-0.16, 0.15) |
| Other Covariates | | | | | |
| Race and Ethnicity^c | 0.01 (-0.13, 0.16) | 0.10 (-0.04, 0.25) ^b | 0.05 (-0.09, 0.21) | -0.03 (-0.18, 0.12) | -0.08 (-0.24, 0.06) |
| Education^d | 0.11 (-0.02, 0.24) ^b | 0.12 (-0.01, 0.24) ^b | 0.05 (-0.08, 0.19) | 0.05 (-0.08, 0.19) | 0.07 (-0.06, 0.20) |
| Income^e | 0.04 (-0.08, 0.16) | 0.17 (0.04, 0.29) ^a | 0.04 (-0.09, 0.17) | 0.14 (0.02, 0.28) ^a | 0.12 (-0.01, 0.25) ^b |
| Parity^f | 0.02 (-0.12, 0.16) | -0.01 (-0.15, 0.13) | 0.04 (-0.11, 0.18) | 0.18 (0.04, 0.34) ^a | 0.12 (-0.02, 0.27) ^b |
| Delivery Mode^g | <0.000 (-0.13, 0.13) | -0.03 (-0.16, 0.10) | -0.13 (-0.27, -0.003) ^a | -0.04 (-0.17, 0.10) | -0.08 (-0.22, 0.04) ^b |
| Child Birthweight | 0.13 (-0.01, 0.26) ^b | 0.03 (-0.10, 0.17) | -0.08 (-0.22, 0.06) | -0.02 (-0.16, 0.12) | 0.07 (-0.07, 0.21) |
| Maternal Age at Birth | 0.001 (-0.14, 0.14) | -0.01 (-0.16, 0.12) | -0.05 (-0.20, 0.09) | -0.08 (-0.23, 0.07) | -0.10 (-0.25, 0.04) ^b |
| Birth | | | | | |
| Pre-Pregnancy BMI^h | -0.10 (-0.24, 0.04) ^b | -0.02 (-0.16, 0.12) | -0.11 (-0.27, 0.02) ^b | -0.10 (-0.26, 0.03) ^b | -0.13 (-0.28, <0.00) ^a |
| Child Sexⁱ | 0.17 (0.04, 0.30) ^a | 0.11 (-0.02, 0.24) ^b | -0.004 (-0.14, 0.13) | 0.03 (-0.11, 0.16) | 0.21 (0.08, 0.34) ^a |

^ap ≤ 0.05

^bp ≤ 0.20

^cWhite as reference group

^dLess than high school diploma/completed high school diploma/trade/technical as reference group

^eIncome < \$70K as reference group

^fNo prior children as reference group

^gVaginal delivery as reference group

^hBMI = Body Mass Index

ⁱMale as reference group

Supplemental Table S7. Unadjusted regression models (95% confidence intervals, *p* values) for the associations between maternal prenatal folate, choline maternal nutrients, and other covariates, and executive functioning tasks in children 3 to 4 years of age, Alberta, Canada, 2009-2017.

| | NEPSY-II Statue | Boy Girl Stroop | Spatial Span | DCCS^c |
|--------------------------------|-----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| | <i>B</i> (95% CI) | <i>B</i> (95% CI) | <i>B</i> (95% CI) | <i>OR</i> (95% CI) |
| Maternal Folate Status | 0.11 (-0.02, 0.23) ^b | -0.03 (-0.16, 0.10) | 0.06 (-0.07, 0.18) | 0.90 (0.66, 1.23) |
| Maternal Choline Intake | 0.06 (-0.06, 0.18) | 0.01 (-0.11, 0.13) | -0.11 (-0.21, 0.02) ^b | 0.90 (0.67, 1.19) |
| Maternal Nutrients | | | | |
| Ferritin | -0.01 (-0.13, 0.11) | 0.08 (-0.06, 0.20) | 0.03 (-0.10, 0.15) | 1.11 (0.81, 1.54) |
| Vitamin B12 | 0.13 (0.004, 0.26) ^a | 0.04 (-0.09, 0.17) | -0.01, (-0.14, 0.12) | 1.07 (0.79, 1.45) |
| Hemoglobin | -0.17 (-0.29, -0.05) ^a | -0.12 (-0.25, 0.001) ^b | -0.04 (-0.16, 0.09) | 0.85 (0.63, 1.15) |
| Omega-3 Fatty Acids | -0.04 (-0.17, 0.08) | 0.08 (-0.04, 0.21) ^b | -0.01 (-0.14, 0.11) | 0.93 (0.69, 1.27) |
| Magnesium | 0.16 (0.03, 0.28) ^a | 0.01 (-0.12, 0.14) | 0.10 (-0.04, 0.22) ^b | 1.19 (0.88, 1.61) |
| Copper | 0.18 (0.05, 0.32) ^a | 0.16 (0.04, 0.32) ^a | 0.06 (-0.07, 0.20) | 0.99 (0.72, 1.37) |
| Zinc | 0.01 (-0.13, 0.14) | 0.06 (-0.08, 0.20) | -0.04 (-0.17, 0.10) | 0.82 (0.59, 1.41) |
| Selenium | 0.07 (-0.07, 0.23) | -0.01 (-0.15, 0.14) | 0.14 (-0.002, 0.28) ^b | 0.86 (0.61, 1.21) |
| Other Covariates | | | | |

| | | | | |
|--------------------------------------|-----------------------------------|-----------------------------------|----------------------------------|--------------------------------|
| Ethnicity^d | -0.18 (-0.32, -0.04) ^a | -0.06 (-0.20, 0.07) | 0.01 (-0.13, 0.14) | 0.97 (0.69, 1.46) |
| Education^e | 0.004 (-0.12, 0.12) | 0.06 (-0.06, 0.19) | 0.04 (-0.09, 0.16) | 1.05 (0.78, 1.42) |
| Income^f | 0.14 (0.02, 0.24) ^a | 0.07 (-0.05, 0.19) | 0.08 (-0.05, 0.19) | 1.27 (0.95, 1.68) ^b |
| Parity^g | 0.14 (0.01, 0.27) ^a | 0.09 (-0.04, 0.23) ^{\b} | 0.04 (-0.10, 0.17) | 1.64 (1.17, 2.29) ^b |
| Delivery Mode^h | 0.11 (-0.01, 0.23) ^b | -0.06 (-0.18, 0.07) | -0.10 (-0.22, 0.02) ^b | 0.86 (0.64, 1.16) |
| Child Birthweight | -0.001 (-0.12, 0.12) | -0.04 (-0.18, 0.08) | 0.11 (-0.02, 0.23) ^b | 1.11 (0.81, 1.52) |
| Maternal Age at Birth | -0.08 (-0.21, 0.06) | -0.08 (-0.22, 0.06) | -0.003 (-0.14, 0.13) | 0.90 (0.65, 1.26) |
| Pre-Pregnancy BMIⁱ | -0.12 (-0.25, 0.01) ^b | -0.19 (-0.33, -0.06) ^a | -0.11 (-0.24, 0.02) ^b | 0.75 (0.55, 1.03) ^b |
| Child Age | — | 0.36 (0.24, 0.49) ^a | 0.18 (0.05, 0.29) ^a | 1.96 (1.44, 2.67) ^a |
| Child Sex^j | 0.17 (0.04, 0.28) ^a | 0.02 (-0.11, 0.14) | 0.04 (-0.08, 0.16) | 1.24 (0.92, 1.66) ^b |

^a $p \leq 0.05$

^b $p \leq 0.20$

^cDCCS = Dimensional Change Card Sort

^dWhite as reference group

^eLess than high school diploma/completed high school diploma/trade/technical as reference group

^fIncome < \$70K as reference group

^gNo prior children as reference group

^hVaginal delivery as reference group

ⁱBMI = Body Mass Index

^jMale as reference group

Supplemental Table S8. Unadjusted regression models (95% confidence intervals, *p* values) for the associations between maternal prenatal folate and choline and motor measures on the MABC-2 in children 3 to 4 years of age, Alberta, Canada, 2009-2017

| | Total Score | Manual Dexterity | Aiming and Catching | Balance |
|--------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | β (95% CI) | β (95% CI) | β (95% CI) | β (95% CI) |
| Predictors | | | | |
| Maternal Folate Status | 0.04 (-0.10, 0.17) | 0.02 (-0.11, 0.14) | 0.03 (-0.11, 0.17) | 0.07 (-0.07, 0.21) |
| Maternal Choline Intake | -0.01 (-0.14, 0.11) | -0.03 (-0.14, 0.10) | 0.02 (-0.11, 0.15) | -0.04 (-0.17, 0.09) |
| Maternal Nutrients | | | | |
| Ferritin | -0.004 (-0.14, 0.13) | -0.06 (-0.18, 0.07) | -0.02 (-0.16, 0.12) | 0.06 (-0.08, 0.20) |
| Vitamin B12 | -0.02 (-0.15, 0.12) | -0.04 (-0.17, 0.09) | 0.01 (-0.13, 0.16) | -0.02 (-0.16, 0.12) |
| Hemoglobin | -0.04 (-0.17, 0.09) | -0.05 (-0.18, 0.07) | 0.02 (-0.11, 0.16) | -0.04 (-0.18, 0.09) |
| Omega-3 Fatty Acids | 0.001 (-0.14, 0.14) | 0.04 (-0.09, 0.17) | 0.005 (-0.14, 0.15) | -0.03 (-0.17, 0.11) |
| Magnesium | 0.02 (-0.12, 0.15) | 0.03 (-0.10, 0.16) | -0.07 (-0.21, 0.07) | 0.10 (-0.04, 0.24) ^b |
| Copper | 0.07 (-0.06, 0.23) | 0.06 (-0.07, 0.21) | 0.002 (-0.15, 0.15) | 0.12 (-0.01, 0.29) ^b |
| Zinc | -0.07 (-0.22, 0.08) | -0.10 (-0.25, 0.03) ^b | -0.04 (-0.20, 0.11) | -0.01 (-0.16, 0.14) |
| Selenium | 0.07 (-0.08, 0.23) | 0.07 (-0.08, 0.21) | 0.11 (-0.04, 0.28) ^b | -0.07 (-0.24, 0.08) |
| Other Covariates | | | | |

| | | | | |
|---------------------------------------|-----------------------------------|-----------------------------------|----------------------------------|----------------------------------|
| Race and Ethnicity^c | -0.02 (-0.17, 0.13) | -0.05 (-0.19, 0.09) | 0.08 (-0.07, 0.23) | -0.06 (-0.21, 0.08) |
| Education^d | -0.05 (-0.18, 0.08) | 0.01 (-0.11, 0.14) | -0.04 (-0.18, 0.10) | -0.05 (-0.19, 0.09) |
| Income^e | 0.10 (-0.03, 0.22) ^b | 0.12 (-0.00, 0.24) ^b | -0.04 (-0.17, 0.09) | 0.11 (-0.02, 0.24) ^b |
| Parity^f | -0.09 (-0.23, 0.06) | 0.01 (-0.13, 0.15) | -0.10 (-0.25, 0.04) ^b | -0.10 (-0.25, 0.05) ^b |
| Delivery Mode^g | 0.03 (-0.10, 0.16) | 0.06 (-0.07, 0.18) | 0.04 (-0.10, 0.18) | -0.06 (-0.20, 0.07) |
| Child Birthweight | 0.05 (-0.09, 0.19) | 0.01 (-0.12, 0.14) | 0.08 (-0.06, 0.22) | -0.02 (-0.16, 0.12) |
| Maternal Age at Birth | 0.00 (-0.14, 0.14) | 0.01 (-0.12, 0.15) | 0.00 (-0.15, 0.15) | 0.02 (-0.12, 0.17) |
| Pre-Pregnancy BMI^h | -0.14 (-0.30, -0.01) ^a | -0.16 (-0.31, -0.03) ^a | -0.12 (-0.27, 0.02) ^b | -0.10 (-0.26, 0.04) ^b |
| Child Sexⁱ | 0.18 (0.05, 0.32) ^a | 0.24 (0.11, 0.36) ^a | 0.02 (-0.12, 0.16) | 0.10 (-0.03, 0.24) ^b |

^a $p \leq 0.05$

^b $p \leq 0.20$

^cWhite as reference group

^dLess than high school diploma/completed high school diploma/trade/technical as reference group

^eIncome < \$70K as reference group

^fNo prior children as reference group

^gVaginal delivery as reference group

^hBMI = Body Mass Index

ⁱMale as reference group

Supplemental Figure S1. Flowchart of participants included in the study

