**Table S1.** Spearman correlation coefficients of maternal serum PFAS concentrations (ng/mL) among mothers in the Avon Longitudinal Study of Parents and Children sub-study population (n=457).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PFOA | PFOS | PFHxS | PFNA |
| PFOA p-valuePFOS p-valuePFHxS p-valuePFNA p-value | --0.63<0.00010.49<0.00010.59<0.0001 | --0.51<0.00010.60<0.0001 | --0.41<0.0001 | -- |

**Table S2.** Regression coefficients (β) and 95% confidence intervals for the association between quintiles of maternal serum PFAS concentrations (ng/mL) and birth weight (g), crown to heel length (cm), and head circumference (cm).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Birth Weighta****n=447** | **Crown to Heel Lengthb** **n=412** | **Head Circumferenceb** **n=416** |
|  | **Quintile Range (ng/mL)** | **Unadjusted**β (95% CI) | **Adjusted**β (95% CI) | **Unadjusted**β (95% CI) | **Adjusted**β (95% CI) | **Unadjusted**β (95% CI) | **Adjusted**β (95% CI) |
| **PFOS** |  |  |  |  |  |  |  |
| Q1c | 4.7-10.4 | Reference | Reference | Reference |
| Q2 | 10.5-12.7 | -129.28(-285.83, 27.26) | -121.48(-280.39, 37.44) | -0.43(-1.11, 0.26) | -0.43(-1.13, 0.28) | -0.23(-0.64, 0.18) | -0.22(-0.65, 0.21) |
| Q3 | 12.8-14.8 | -203.13(-357.90, -48.37)\* | -54.73(-209.63, 100.17) | -0.28(-0.97, 0.41) | -0.08(-0.77, 0.62) | -0.19(-0.61, 0.22) | -0.05(-0.47, 0.38) |
| Q4 | 14.9-18.8 | -197.29(-351.64, -42.95)\* | -132.98(-286.81, 20.84) | -0.64(-1.33, 0.05) | -0.54(-1.23, 0.15) | -0.39(-0.79, 0.02) | -0.33(-0.75, 0.09) |
| Q5 | 18.9-49.1 | -220.03(-374.37, -65.69)\* | -140.18(-290.42, 10.05) | -0.70(-1.38, -0.01)\* | -0.61(-1.29, 0.06) | -0.41(-0.82, -0.01)\* | -0.32(-0.73, 0.09) |
| p-trend |  | 0.004 | 0.09 | 0.04 | 0.08 | 0.03 | 0.10 |
|  |  |  |  |  |  |  |  |
| **PFOA** |  |  |  |  |  |  |  |
| Q1 | 1.2-2.1 | Reference | Reference | Reference |
| Q2 | 2.2-2.6 | -47.94(-206.08, 110.20) | 17.89(-139.50, 175.29) | -0.49(-1.18, 0.21) | -0.09(-0.80, 0.61) | -0.11(-0.53, 0.31) | 0.07(-0.36, 0.50) |
| Q3 | 2.7-3.2 | -9.84(-169.25, 149.57) | 9.60(-153.20, 172.41) | 0.17(-0.53, 0.87) | 0.18(-0.54, 0.91) | 0.03(-0.40, 0.45) | 0.03(-0.41, 0.48) |
| Q4 | 3.3-4.0 | -188.73(-345.28, -32.18)\* | -56.63(-215.17, 101.92) | -0.49(-1.20, 0.21) | -0.09(-0.82, 0.63) | -0.27(-0.69, 0.15) | -0.07(-0.51, 0.37) |
| Q5 | 4.1-12.4 | -96.02(-254.15, 62.12) | 2.00(-156.46, 160.46) | -0.48(-1.18, 0.22) | -0.23(-0.94, 0.48) | -0.03(-0.44, 0.39) | 0.09(-0.34, 0.52) |
| p-trend |  | 0.06 | 0.72 | 0.23 | 0.54 | 0.66 | 0.89 |
|  |  |  |  |  |  |  |  |
| **PFHxS** |  |  |  |  |  |  |  |
| Q1 | 0.5-1.2 | Reference | Reference | Reference |
| Q2 | 1.3-1.6 | -153.81(-313.35, 5.74) | -100.08(-257.17, 57.00) | -0.55(-1.26, 0.16) | -0.35(-1.06, 0.35) | -0.24(-0.66, 0.18) | -0.10(-0.53, 0.33) |
| Q3 | 1.7-1.9 | -78.94(-245.06, 87.19) | -55.58(-222.37, 111.21) | -0.58(-1.33, 0.16) | -0.31(-1.07, 0.44) | -0.31(-0.76, 0.13) | -0.13(-0.58, 0.34) |
| Q4 | 2.0-2.5 | -123.71(-276.54, 29.12) | -71.49(-221.52, 78.54) | -0.73(-1.43, -0.04)\* | -0.58(-1.27, 0.11) | -0.26(-0.68, 0.15) | -0.19(-0.61, 0.23) |
| Q5 | 2.6-74.2 | -106.21(-262.88, 50.46) | -69.00(-223.11, 85.12) | -0.74(-1.45, -0.03)\* | -0.56(-1.26, 0.14) | -0.22(-0.64, 0.20) | -0.07(-0.49, 0.36) |
| p-trend |  | 0.32 | 0.56 | 0.04 | 0.10 | 0.37 | 0.66 |
|  |  |  |  |  |  |  |  |
| **PFNA** |  |  |  |  |  |  |  |
| Q1 | 0.1 | Reference | Reference | Reference |
| Q2 | 0.2 | -22.32(-405.18, 360.54) | 82.96(-294.38, 460.31) | 0.28(-1.47, 2.03) | 0.52(-1.25, 2.28) | -0.12(-1.18, 0.93) | 0.21(-0.87, 1.30) |
| Q3 | 0.3 | -155.98(-533.34, 221.38) | -20.55(-391.38, 350.28) | -0.14(-1.86, 1.59) | 0.20(-1.54, 1.93) | -0.26(-1.30, 0.78) | 0.10(-0.96, 1.17) |
| Q4 | 0.4 | -185.84(-564.19, 192.50) | -26.14(-398.79, 346.52) | 0.19(-1.54, 1.92) | 0.46(-1.29, 2.20) | -0.20(-1.25, 0.84) | 0.04(-1.03, 1.11) |
| Q5 | 0.5-1.6 | -262.29(-640.64, 116.05) | -88.68(-460.74, 283.38) | -0.40(-2.13, 1.34) | -0.11(-1.86, 1.63) | -0.35(-1.39, 0.69) | -0.05(-1.12, 1.02) |
| p-trend |  | 0.001 | 0.046 | 0.14 | 0.17 | 0.29 | 0.24 |

Abbreviations: PFOS perfluorooctane sulfonic acid; PFOA perfluorooctanoic acid; PFHxS perfluorohexane sulfonic acid; PFNA perfluorononanoic acid; 95% CI 95% confidence interval; Q1 quintile 1; Q2 quintile 2; Q3 quintile 3; Q4 quintile 4; Q5 quintile 5

a In adjusted models, controlling for maternal age, maternal pre-pregnancy BMI, folic acid use, smoking during pregnancy, alcohol use during pregnancy, parity, and gestational age at sample collection.

b In adjusted models, controlling for maternal pre-pregnancy BMI, folic acid use, smoking during pregnancy, parity, and gestational age at sample collection.
c Q2, Q3, Q4, and Q5 represent quintiles 2, 3, 4, and 5, where Q5 is the highest category of exposure. Quintile 1 (lowest category of exposure) is the reference group.

\*Indicates p<0.05

**Table S3.** Comparison of geometric means (95% CI) of ALSPAC serum perfluoroalkyl substance (PFAS) concentrations among pregnant women to other population- or cohort-level data from North America, Europe, and Asiaa

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Country** | **Sample Size** | **Year(s) of collection** | **PFOA** | **PFOS** | **PFHxS** | **PFNA** |
| ALSPAC | UK | 457 | 1991-1992 | 2.97(2.87, 3.07) | 14.07(13.60, 14.56) | 1.93(1.83, 2.03) | 0.35(0.34, 0.37) |
| NHANESb | US | 819 | 1999-2000 | 4.80(4.32, 5.34) | 28.0(24.6, 31.8) | 1.79(1.56, 2.06) | 0.51(0.41, 0.63) |
| NHANESb | US | 1029 | 2015-2016 | 1.36(1.29, 1.45) | 3.67(3.34, 4.03) | 0.88(0.78, 0.99) | 0.53(0.49, 0.57) |
| DNBC | Denmark | 1594 | 1996-2002 | 4.3(4.2, 4.4) | 28.3(27.7, 29.0) | 1.06(1.03, 1.09) | 0.45(0.44, 0.46) |
| MISA | Norway | 391 | 2007-2009 | 1.6(1.6, 1.7) | 8.0(7.7, 8.4) | 0.47(0.45, 0.50) | 0.60(0.58, 0.63) |
| ABC | Denmark | 1533 | 2008-2013 | 1.8(1.8, 1.9) | 7.7(7.5, 7.9) | 0.44(0.43, 0.45) | 0.73(0.71, 0.75) |
| ACCEPT | Greenland | 207 | 2010-2013 | 1.3(1.2, 1.4) | 10.9(10.3, 11.7) | 0.79(0.73, 0.84) | 1.39(1.31, 1.47) |
| SBC | Shanghai | 448 | 2013-2015 | 10.7(10.2, 11.1) | 8.0(7.6, 8.3) | 0.58(0.55, 0.61) | 1.51(1.45, 1.58) |

Abbreviations: PFOA perfluorooctanoic acid; PFOS perfluorooctane sulfonic acid; PFHxS perfluorohexane sulfonic acid; PFNA perfluorononanoic acid; 95% CI 95% confidence interval; UK United Kingdom; US United States of America; ALSPAC Avon Longitudinal Study of Parents and Children; NHANES National Health and Nutrition Examination Survey; DNBC Danish National Birth Cohort; MISA The northern Norway Mother-Child Contaminant Cohort; ABC Aarhus Birth Cohort; ACCEPT The Greenlandic Birth Cohort; SBC Shanghai Birth Cohort

a Adapted from Bjerregaard-Olesen et al., 2017, table 2

b Among total female NHANES population (pregnant and nonpregnant)