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## Supplemental Material

### **Anthropometry in 5- to 9-Year-Old Greenlandic and Ukrainian Children in Relation to Prenatal Exposure to Perfluorinated Alkyl Substances**

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**Table S1.** Characteristics of participants and those lost to follow-up.

<b>Characteristic</b>	<b>Lost to follow-up<sup>a</sup> Greenland (n=40)</b>	<b>Participants<sup>b</sup> Greenland (n=531)</b>	<b>Lost to follow-up<sup>c</sup> Ukraine (n=119)</b>	<b>Participants<sup>d</sup> Ukraine (n=491)</b>
<b>PFOA</b> , ng/mL [Median (range)]	1.7 (0.5—3.3)	1.8 (0.5—5.1)	0.9 (0.3—2.6)	1.0 (0.2—9.8)
<b>PFOS</b> , ng/mL [Median (10 <sup>th</sup> 90 <sup>th</sup> percentile)]	19.4 (10.9—67.7)	20.2 (4.1—87.3)	5.1 (0.8—13.3)	5.0 (15.0—37.9)
<b>Maternal pre-pregnancy BMI</b> , kg/m <sup>2</sup> [Mean (SD)]	24.2 (4.6)	24.5 (4.5)	21.6 (2.9)	21.7 (3.3)
<b>Paternal BMI</b> , kg/m <sup>2</sup> [Mean (SD)]	25.8 (3.4)	26.8 (3.8)	24.3 (3.2)	24.2 (2.9)

Abbreviations: BMI, body mass index; PFOA, perfluorooctanoate; PFOS, perfluorooctane sulfonate.

<sup>a</sup>In the lost to follow-up group, 27.5% had missing information on paternal BMI. <sup>b</sup>Among the participants, 0.4% had missing information on maternal BMI and 25.0% had missing information on paternal BMI. <sup>c</sup>In the lost to follow-up group, 0.8% had missing PFOA, PFOS and maternal BMI and 4.2% had missing paternal BMI. <sup>d</sup>Among the participants, 1.6% had missing information on maternal BMI and 3.3% had missing information on paternal BMI.

**Table S2.** Maternal PFOA and PFOS concentrations during pregnancy and crude relative risk (RR) of offspring overweight (WHO > 85<sup>th</sup> percentile (age and sex standardised)) and waist-to-height-ratio >0.5 at 5 to 9 years.

Exposure	Level	Overweight		WHtR >0.5	
		n	Crude RR (95 % CI)	n	Crude RR (95 % CI)
<b>Greenland</b> PFOA	Low	177	1.00	177	1.00
	Medium	177	1.47 (1.07, 2.02)	177	1.34 (0.95, 1.89)
	High	177	1.41 (1.02, 1.94)	177	1.12 (0.78, 1.59)
	Continuous <sup>a</sup>	531	1.31 (0.99, 1.72)	531	1.21 (0.90, 1.63)
PFOS	Low	177	1.00	177	1.00
	Medium	177	1.04 (0.78, 1.38)	177	1.12 (0.79, 1.59)
	High	177	0.89 (0.65, 1.22)	177	1.19 (0.85, 1.68)
	Continuous <sup>a</sup>	531	0.95 (0.72, 1.24)	531	1.26 (0.94, 1.68)
<b>Ukraine</b> PFOA	Low	164	1.00	164	1.00
	Medium	164	1.34 (0.90, 2.04)	164	1.18 (0.54, 2.56)
	High	163	0.78 (0.48, 1.27)	163	1.01 (0.45, 2.27)
	Continuous <sup>a</sup>	491	1.02 (0.73, 1.42)	491	1.36 (0.79, 2.32)
PFOS	Low	164	1.00	164	1.00
	Medium	164	0.92 (0.60, 1.40)	164	1.45 (0.64, 3.31)
	High	163	0.86 (0.56, 1.34)	163	1.45 (0.64, 3.31)
	Continuous <sup>a</sup>	491	1.07 (0.74, 1.56)	491	1.70 (0.87, 3.32)

Abbreviations: CI, confidence interval; PFOA, perfluorooctanoate; PFOS, perfluorooctane sulfonate; RR, relative risk; WHtR, waist-to-height-ratio.

<sup>a</sup>Continuous PFOA and PFOS are natural logarithm transformed.

Multiple imputation was used to impute missing data.

**Table S3.** Maternal PFOA and PFOS concentrations during pregnancy and crude and adjusted associations with BMI z-scores (sex and age standardised) and WHtR in offspring at 5 to 9 years.

Exposure	Level	n	BMI z-score Crude $\beta$ (95 % CI)	BMI z-score Adjusted <sup>a</sup> $\beta$ (95% CI)	n	WHtR Crude $\beta$ (95 % CI)	WHtR Adjusted <sup>b</sup> $\beta$ (95 % CI)
PFOA	Greenland	Low	reference	reference	177	reference	reference
		Medium	0.23 (-0.03, 0.49)	0.09 (-0.18, 0.35)	177	0.01 (0.00, 0.02)*	0.01 (0.00, 0.02)
		High	0.30 (0.05, 0.56)*	0.19 (-0.09, 0.46)	177	0.01 (0.00, 0.02)	0.01 (0.00, 0.02)
		Continuous <sup>c</sup>	0.25 (0.01, 0.49)**	0.11 (-0.14, 0.37)	531	0.01 (0.00, 0.02)**	0.01 (0.00, 0.02)**
	Ukraine	Low	reference	reference	164	reference	reference
		Medium	0.21 (-0.03, 0.46)	0.28 (0.03, 0.52)*	164	0.00 (-0.01, 0.01)	0.00 (-0.01, 0.01)
		High	-0.01 (-0.25, 0.24)	0.07 (-0.18, 0.32)	163	0.00 (-0.01, 0.01)	0.00 (-0.01, 0.01)
		Continuous <sup>c</sup>	0.03 (-0.17, 0.23)	0.02 (-0.19, 0.23)	491	0.00 (-0.01, 0.01)	0.00 (-0.01, 0.01)
PFOS	Greenland	Low	reference	reference	177	reference	reference
		Medium	0.00 (-0.25, 0.26)	-0.06 (-0.31, 0.19)	177	0.01 (0.00, 0.02)	0.01 (0.00, 0.02)
		High	-0.11 (-0.37, 0.15)	-0.15 (-0.41, 0.10)	177	0.01 (-0.01, 0.02)	0.00 (0.00, 0.02)
		Continuous <sup>c</sup>	-0.05 (-0.28, 0.19)	-0.07 (-0.31, 0.16)	531	0.00 (0.00, 0.01)	0.00 (0.00, 0.02)
	Ukraine	Low	reference	reference	164	reference	reference
		Medium	-0.01 (-0.25, 0.23)	-0.03 (-0.27, 0.22)	164	0.00 (-0.01, 0.01)	0.00 (-0.01, 0.01)
		High	-0.01 (-0.25, 0.24)	0.03 (-0.22, 0.28)	163	0.01 (0.00, 0.02)*	0.01 (0.00, 0.02)
		Continuous <sup>c</sup>	0.03 (-0.19, 0.25)	0.04 (-0.19, 0.26)	491	-0.01 (-0.02, 0.01)	0.00 (0.00, 0.01)

Abbreviations: CI, confidence interval; PFOA, perfluorooctanoate; PFOS, perfluorooctane sulfonate; WHtR, waist-to-height-ratio.

<sup>a</sup>Adjusted for maternal age at birth, maternal pre-pregnancy body mass index, smoking during pregnancy, maternal education and parity. <sup>b</sup>Adjusted for child sex, child age at follow-up, maternal age at birth, maternal pre-pregnancy body mass index, smoking during pregnancy, maternal education and parity. <sup>c</sup>Continuous PFOA and PFOS are natural logarithm transformed and  $\beta$  is the change in outcome for one natural log-unit of exposure.

\*Statistically significantly different compared to low exposed children,  $p < 0.05$ .

\*\*Statistically significantly different from 0 for one natural log-unit increase in exposure,  $p < 0.05$ .

Multiple imputation was used to impute missing data.

**Table S4.** Complete-case-analysis of maternal PFOA and PFOS concentrations during pregnancy and crude and adjusted relative risk (RR) of offspring overweight (WHO > 85<sup>th</sup> percentile (sex and age standardised)) and waist-height-ratio >0.5 at 5 to 9 years.

Exposure	Level	Cases/n	Overweight Crude RR (95% CI)	Cases/n	Overweight Adjusted <sup>b</sup> RR (95% CI)	Cases/n	WHtR >0.5 Crude RR (95% CI)	Cases/n	WHtR >0.5 Adjusted <sup>c</sup> RR (95 % CI)
<b>PFOA</b>									
Greenland	Low	38/143	1.00	35/135	1.00	35/130	1.00	43/117	1.00
	Medium	57/136	1.57 (1.12, 2.19)	55/127	1.40 (0.98, 2.01)	49/126	1.44 (1.01, 2.07)	36/114	1.50 (1.02, 2.21)
	High	57/147	1.47 (1.05, 2.06)	53/133	1.27 (0.88, 1.84)	40/139	1.07 (0.73, 1.57)	37/122	1.20 (0.80, 1.82)
	Continuous <sup>a</sup>	152/426	1.35 (1.01, 1.79)	143/395	1.13 (0.82, 1.57)	124/395	1.16 (0.85, 1.57)	116/353	1.28 (0.90, 1.82)
Ukraine	Low	31/164	1.00	30/155	1.00	11/164	1.00	10/155	1.00
	Medium	40/161	1.31 (0.87, 1.99)	39/150	1.37 (0.89, 2.10)	13/164	1.18 (0.55, 2.56)	12/150	1.41 (0.62, 3.21)
	High	24/163	0.81 (0.50, 1.31)	23/156	0.79 (0.48, 1.32)	11/162	1.01 (0.45, 2.27)	10/155	1.13 (0.47, 2.72)
	Continuous <sup>a</sup>	95/488	1.04 (0.75, 1.45)	92/461	1.00 (0.70, 1.41)	35/490	1.36 (0.79, 2.32)	32/460	1.43 (0.78, 2.63)
Greenland & Ukraine <sup>d</sup>	Continuous <sup>a</sup>	247/914	1.20 (0.97, 1.48)	235/856	1.12 (0.90, 1.41)	159/885	1.21 (0.92, 1.58)	148/813	1.29 (0.96, 1.75)
<b>PFOS</b>									
Greenland	Low	51/139	1.00	48/132	1.00	32/122	1.00	32/112	1.00
	Medium	55/143	1.05 (0.78, 1.42)	51/132	0.93 (0.69, 1.27)	42/130	1.23 (0.84, 1.82)	38/116	1.18 (0.80, 1.74)
	High	46/144	0.87 (0.63, 1.20)	44/131	0.85 (0.61, 1.18)	50/143	1.33 (0.92, 1.94)	46/125	1.31 (0.90, 1.92)
	Continuous <sup>a</sup>	152/426	0.96 (0.73, 1.27)	143/395	0.93 (0.79, 1.25)	124/395	1.35 (1.00, 1.83)	116/353	1.47 (1.08, 2.00)
Ukraine	Low	35/164	1.00	34/153	1.00	9/164	1.00	8/153	1.00
	Medium	31/163	0.89 (0.58, 1.37)	31/157	0.89 (0.58, 1.37)	13/163	1.45 (0.64, 3.31)	13/156	1.66 (0.71, 3.87)
	High	29/161	0.87 (0.56, 1.35)	27/151	0.86 (0.55, 1.34)	13/163	1.45 (0.64, 3.31)	11/151	1.42 (0.58, 3.46)
	Continuous <sup>a</sup>	95/488	1.08 (0.74, 1.58)	92/461	1.09 (0.74, 1.59)	35/490	1.70 (0.87, 3.31)	32/460	1.67 (0.80, 3.47)
Greenland & Ukraine <sup>d</sup>	Continuous <sup>a</sup>	247/914	1.01 (0.80, 1.26)	235/856	1.00 (0.79, 1.26)	159/885	1.42 (1.08, 1.87)	148/813	1.54 (1.16, 2.06)

Abbreviations: CI, confidence interval; PFOA, perfluorooctanoate; PFOS, perfluorooctane sulfonate; RR, relative risk; WHtR, waist-to-height-ratio.

<sup>a</sup>Continuous PFOA and PFOS are natural logarithm transformed. <sup>b</sup>Adjusted for maternal age at birth, maternal pre-pregnancy body mass index, smoking during pregnancy, maternal education and parity. <sup>c</sup>Adjusted for child sex, age at follow-up, maternal age at birth, maternal pre-pregnancy body mass index, smoking during pregnancy, maternal education and parity. <sup>d</sup>In addition adjusted for country.