

Supplementary materials

Characteristic			Total		České Budějovice		Karviná	
			N	Mean	N	Mean	N	Mean
Maternal education	Primary	%	344	2.6	199	1.0 ⁺	145	4.8 ⁺
	Lower secondary	%	344	12.8	199	8.5 ⁺⁺	145	18.6 ⁺⁺
	Upper secondary	%	344	45.9	199	50.3	145	40.0
	Studying University	%	344	0.3	199	0.5	145	0.0
	University degree	%	344	36.1	199	37.2	145	34.5
Maternal state	Single	%	344	25.6	199	20.1 ⁺⁺	145	33.1 ⁺⁺
	Married	%	344	59.0	199	62.3	145	54.5
	Fiancée	%	344	7.6	199	8.5	145	6.2
	Divorced	%	344	5.8	199	7.0	145	4.1
	Widow	%	344	0.0	199	0.0	145	0.0
Employed in pregnancy		%	344	69.8	199	75.4 ⁺⁺	145	62.1 ⁺⁺
Chronical disease		%	344	23.0	199	24.6	145	20.7
Risk pregnancy		%	344	16.9	199	17.6	145	15.9
Smoker		%	344	31.4	199	31.2	145	31.7
	Pre pregnancy	cig/day	337	1.0 ± 3.2	194	0.8 ± 2.9 ^{**}	143	1.3 ± 3.5 ^{**}
	1st trimester	cig/day	337	0.3 ± 1.5	194	0.1 ± 0.7	143	0.5 ± 2.2
	2nd trimester	cig/day	337	0.0 ± 0.4	194	0.0 ± 0.4	143	0.1 ± 0.5
	3rd trimester	cig/day	337	0.0 ± 0.3	194	0.0 ± 0.4	143	0.0 ± 0.3
	ETS	cig/day	306	3.0 ± 8.8	189	2.1 ± 5.7	117	4.6 ± 12.1
Alcohol consumption	Before pregnancy	beer	332	0.5 ± 1.0	193	0.6 ± 1.1	139	0.5 ± 0.9
		wine	332	1.3 ± 1.9	193	1.4 ± 2.1	139	1.1 ± 1.6
		distillates	333	0.1 ± 0.5	193	0.0 ± 0.3	140	0.1 ± 0.6
	During pregnancy	beer	334	0.2 ± 0.6	192	0.2 ± 0.5	142	0.2 ± 0.6
		wine	334	0.2 ± 0.5	192	0.2 ± 0.5	142	0.1 ± 0.4
		distillates	332	0.0 ± 0.2	191	0.0 ± 0.0	141	0.0 ± 0.3
Note: Results of Mann–Whitney <i>U</i> -test compared by region for continuous variable * <i>p</i> < 0.05, ** <i>p</i> < 0.01, *** <i>p</i> < 0.001 and logistic regression by region for dichotomic ⁺ <i>p</i> < 0.05, ⁺⁺ <i>p</i> < 0.01, ⁺⁺⁺ <i>p</i> < 0.001.								

Suppl. Table 2. Children's growth parameters in summer and winter

Growth Parameter				České Budějovice				Karviná			
				Summer 2013		Winter 2014		Summer 2013		Winter 2014	
				N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD
Head circumference	abs	at birth	cm	99	34.6 ± 1.5	98	34.6 ± 1.3	59	34.5 ± 1.4	72	34.4 ± 1.2
		3 months	cm	90	40.5 ± 1.4	81	40.3 ± 1.4	53	40.2 ± 1.1	60	40.2 ± 1.3
		6 months	cm	90	43.4 ± 1.5	80	43.2 ± 1.5	54	43.1 ± 1.3	61	43.1 ± 1.2
		18 months	cm	90	47.9 ± 1.4	81	47.7 ± 1.7	53	47.6 ± 1.5	60	47.4 ± 1.5
		24 months	cm	66	49.1 ± 1.5	72	48.9 ± 1.7	49	48.6 ± 1.4	57	48.7 ± 1.5
	gain	birth–3 m	cm	90	5.9 ± 1.6	81	5.7 ± 1.6	47	5.7 ± 1.4	60	5.7 ± 1.2
		3–6 m	cm	90	3.0 ± 0.9	80	3.0 ± 1.2	53	3.0 ± 0.8	59	3.0 ± 0.9
		6–18 m	cm	90	4.5 ± 1.1	80	4.5 ± 1.2	53	4.6 ± 1.0	59	4.3 ± 1.0
		18–24 m	cm	66	1.2 ± 0.7	71	1.2 ± 0.8	48	1.1 ± 0.6	57	1.4 ± 0.8
Length	abs	at birth	cm	96	49.9 ± 1.8*	96	50.0 ± 1.6**	71	49.3 ± 2.2*	73	49.1 ± 2.1**
		3 months	cm	89	62.1 ± 2.6	78	61.7 ± 2.4	49	61.8 ± 2.6	61	61.2 ± 2.7
		6 months	cm	90	68.9 ± 2.6+	80	68.0 ± 2.8+	49	68.3 ± 2.8	62	67.9 ± 2.9
		18 months	cm	90	83.5 ± 3.0+	81	82.2 ± 3.6+	53	83.6 ± 3.9	63	82.6 ± 3.6
		24 months	cm	67	89.3 ± 3.5+	74	88.1 ± 3.6+	49	89.4 ± 3.9	57	88.7 ± 4.1
	gain	birth–3 m	cm	86	12.1 ± 2.1	76	11.6 ± 2.1	49	12.4 ± 2.7	61	12.0 ± 2.4
		3–6 m	cm	89	6.8 ± 1.9	78	6.3 ± 2.3	48	6.6 ± 1.8	60	6.6 ± 1.9
		6–18 m	cm	90	14.6 ± 2.9	80	14.2 ± 3.5	48	15.5 ± 3.2	62	14.7 ± 2.7
		18–24 m	cm	67	5.7 ± 2.3	73	6.0 ± 2.4	48	5.8 ± 3.1	57	6.1 ± 2.2
Weight	abs	at birth	g	99	3477 ± 448	99	3453 ± 438	71	3394 ± 469	73	3363 ± 419
		3 months	g	81	6037 ± 740	82	5860 ± 641	38	6107 ± 799	60	6035 ± 820
		6 months	g	81	7651 ± 860	81	7488 ± 825	38	7873 ± 1024	60	7700 ± 1030
		18 months	g	80	11299 ± 1407	80	11128 ± 1374	37	11519 ± 1850	63	11238 ± 1624
		24 months	g	57	12998 ± 1826	72	12596 ± 1598	33	12909 ± 1689	56	12883 ± 2050
	gain	birth–3 m	g	81	2555 ± 601	82	2402 ± 601*	38	2717 ± 631	60	2632 ± 702*
		3–6 m	g	81	1614 ± 434	81	1637 ± 640	38	1766 ± 489	59	1711 ± 610
		6–18 m	g	80	3648 ± 937	80	3648 ± 927	36	3659 ± 1306	60	3532 ± 1121
		18–24 m	g	57	1769 ± 1045	70	1425 ± 683	32	1523 ± 937	56	1601 ± 770
Apgar 5'				90	9.9 ± 0.4 ⁺⁺	92	9.6 ± 0.7 ⁺⁺⁺	64	10.0 ± 0.2	65	10.0 ± 0.0 ⁺⁺⁺
Placenta weight			g	98	566 ± 123	93	588 ± 127 ⁺⁺⁺	69	556 ± 130 ⁺⁺	73	490 ± 125 ⁺⁺ ⁺⁺⁺
Note: Results of Mann–Whitney <i>U</i> -test compared by region * <i>p</i> < 0.05, ** <i>p</i> < 0.01, *** <i>p</i> < 0.001, by period + <i>p</i> < 0.05, ++ <i>p</i> < 0.01, +++ <i>p</i> < 0.001.											

Suppl. Table 3. Mothers' and children's urine OH-PAH metabolites (ng/g creatinine) at birth in summer and winter

		České Budějovice				Karviná			
		Summer 2013		Winter 2014		Summer 2013		Winter 2014	
Subject	OH-PAH	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD
Mothers	3-OH-BaP	89	450.0 + 0.0	64	450.0 + 0.0	80	450.0 + 0.0	50	450.0 + 0.0
	6-OH-CHRY	89	5.0 + 0.0	64	5.0 + 0.0	80	5.0 + 0.0	50	5.0 + 0.0
	2-OH-FLUO	89	388.3 + 360.3 ⁺⁺⁺	64	252.4 + 249.9 ⁺⁺⁺	80	558.4 + 591.6 ⁺⁺⁺	50	991.6 + 869.7 ⁺⁺⁺
	1-OH-NAP	89	699.0 + 1729.8 ⁺⁺⁺	64	419.6 + 914.6 ⁺⁺⁺	80	917.1 + 1233.3 ⁺⁺⁺	50	2368.0 + 4121.0 ⁺⁺⁺
	2-OH-NAP	89	6103.0 + 4424.2	64	7861.7 + 7030.7 ^{**}	80	5806.7 + 4257.3	50	8206.7 + 6066.5 ^{**}
	1-OH-PHEN	89	405.0 + 348.0 ^{***}	64	915.1 + 895.5 ^{***}	80	478.9 + 471.0 ^{***}	50	813.8 + 624.9 ^{***}
	2-OH-PHEN	89	184.2 + 152.0 ⁺⁺⁺	64	208.0 + 175.5 ⁺⁺⁺	80	308.1 + 359.3 ⁺⁺⁺	49	466.1 + 398.5 ⁺⁺⁺
	3-OH-PHEN	89	85.3 + 56.4 ^{***}	64	64.1 + 87.0 ^{***}	80	111.5 + 114.3 ⁺⁺⁺	50	221.3 + 165.1 ⁺⁺⁺
	4-OH-PHEN	89	86.3 + 81.2 ⁺⁺⁺	64	115.1 + 119.3 ⁺⁺⁺	80	645.7 + 1116.2 ⁺⁺⁺	50	1090.1 + 1486.7 ⁺⁺⁺
	9-OH-PHEN	89	150.2 + 145.1 ⁺⁺⁺	64	39.0 + 73.8 ⁺⁺⁺	80	995.0 + 1106.6 ⁺⁺⁺	50	1840.3 + 2502.4 ⁺⁺⁺
	1-OH-PYR	89	203.7 + 142.7	64	213.7 + 125.0 ^{***}	80	246.0 + 200.0 ⁺⁺⁺	50	359.5 + 178.7 ⁺⁺⁺
	All-OH-PAH	89	8301.4 + 6380.1 ⁺	64	10077.8 + 7441.3 ⁺⁺⁺	80	10066.6 + 6318.5 ⁺⁺⁺	50	16346.5 + 12127.6 ⁺⁺⁺
Children	3-OH-BaP	89	450.0 + 0.0	65	450.0 + 0.0	80	450.0 + 0.0	50	450.0 + 0.0
	6-OH-CHRY	89	5.0 + 0.0	65	5.0 + 0.0	80	5.0 + 0.0	50	5.0 + 0.0
	2-OH-FLUO	89	127.1 + 106.8 ⁺⁺⁺	65	266.2 + 135.7 ⁺⁺⁺	80	91.8 + 113.4 ⁺⁺⁺	50	364.2 + 320.6 ⁺⁺⁺
	1-OH-NAP	89	104.6 + 247.4 ⁺⁺⁺	65	666.2 + 467.8 ⁺⁺⁺	80	131.9 + 204.1 ⁺⁺⁺	50	854.1 + 549.6 ⁺⁺⁺
	2-OH-NAP	89	2969.6 + 2298.1 ^{***}	65	5806.4 + 4741.8 ^{***}	80	3123.1 + 3005.9 ^{***}	50	4965.9 + 2862.2 ^{***}
	1-OH-PHEN	89	165.8 + 130.3 ⁺⁺⁺	65	872.6 + 654.3 ⁺⁺⁺	80	123.8 + 173.4 ^{***}	50	814.7 + 592.1 ^{***}
	2-OH-PHEN	89	110.7 + 93.4 ⁺⁺⁺	65	490.5 + 290.8 ⁺⁺⁺	80	89.3 + 107.3 ^{***}	50	481.3 + 361.4 ^{***}
	3-OH-PHEN	89	22.1 + 19.7 ⁺⁺⁺	65	69.0 + 50.5 ⁺⁺⁺	80	14.4 + 21.0 ⁺⁺⁺	50	112.4 + 71.5 ⁺⁺⁺
	4-OH-PHEN	89	9.6 + 11.1 ⁺⁺⁺	65	36.3 + 42.7 ⁺⁺⁺	80	154.4 + 232.9 ⁺⁺⁺	50	356.9 + 534.9 ⁺⁺⁺
	9-OH-PHEN	89	90.5 + 73.7 ⁺⁺⁺	65	297.9 + 160.7 ⁺⁺⁺	80	817.8 + 852.9 ⁺⁺⁺	50	3769.3 + 3190.1 ⁺⁺⁺
	1-OH-PYR	89	37.4 + 54.9 ^{***}	65	129.9 + 111.5 ^{***}	80	26.0 + 27.2 ^{***}	50	173.7 + 166.0 ^{***}
	All-OH-PAH	89	3612.1 + 2530.9 ^{***}	65	8627.2 + 5183.9 ^{***}	80	4548.8 + 3498.9 ⁺⁺⁺	50	11885.8 + 5393.9 ⁺⁺⁺

Note: Results of Mann–Whitney *U*-test compared by region * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ and by period + $p < 0.05$, ++ $p < 0.01$, +++ $p < 0.001$.

Suppl. Table 4. Impact of mothers' and children's urine OH-PAH metabolites on growth parameters in summer and winter

A) České Budějovice													
		Summer 2013						Winter 2014					
Subject	OH-PAH	N	Head circumference	Length	Weight	Placenta weight	Apgar 5'	N	Head circumference	Length	Weight	Placenta weight	Apgar 5'
Mothers	2-OH-FLUO	99	0.02	-0.04	0.02	0.18	-0.09	100	-0.03	0.01	0.01	0.00	-0.17
	1-OH-NAP	99	-0.13	-0.17	-0.03	-0.01	-0.04	100	0.04	-0.01	0.02	0.12	-0.13
	2-OH-NAP	99	-0.01	-0.04	0.03	0.13	0.02	100	-0.11	0.00	-0.12	-0.22	0.00
	1-OH-PHEN	99	-0.01	-0.06	0.07	0.16	0.06	100	0.01	0.01	0.07	-0.09	-0.08
	2-OH-PHEN	99	-0.06	-0.04	0.03	0.14	-0.01	100	-0.10	0.08	0.03	-0.09	0.12
	3-OH-PHEN	99	0.01	-0.03	0.01	0.08	-0.07	100	0.08	0.08	0.17	0.08	-0.10
	4-OH-PHEN	99	0.04	-0.05	0.04	0.08	0.00	100	0.02	0.03	0.04	0.10	0.14
	9-OH-PHEN	99	-0.13	-0.19	-0.19	-0.21	-0.12	100	-0.10	0.05	-0.10	0.08	0.13
	1-OH-PYR	99	-0.09	0.08	0.10	0.10	0.01	100	0.14	0.14	0.13	0.22	-0.09
	All-OH-PAH	99	-0.01	-0.08	0.03	0.13	0.00	100	-0.09	0.00	-0.11	-0.10	0.01
Children	2-OH-FLUO	89	-0.03	-0.17	-0.08	-0.08	0.05	80	-0.08	-0.07	0.03	-0.23	0.03
	1-OH-NAP	89	-0.05	-0.13	-0.11	-0.02	0.09	80	-0.15	-0.14	0.01	-0.24*	0.00
	2-OH-NAP	89	0.12	-0.07	0.08	0.12	0.02	80	-0.11	-0.10	-0.05	-0.38***	-0.02
	1-OH-PHEN	89	0.07	0.01	0.03	0.09	0.12	80	-0.03	0.00	0.11	-0.20	0.11
	2-OH-PHEN	89	-0.04	-0.07	-0.08	-0.08	0.04	80	-0.14	-0.01	0.05	-0.06	0.00
	3-OH-PHEN	89	-0.04	-0.19	-0.08	-0.08	0.11	80	-0.04	-0.02	0.06	-0.27*	-0.03
	4-OH-PHEN	89	-0.09	-0.10	0.01	0.06	0.12	80	-0.20	-0.12	-0.08	-0.28*	0.02
	9-OH-PHEN	89	0.03	-0.16	-0.02	0.09	0.01	80	0.18	0.06	0.20	0.03	0.21
	1-OH-PYR	89	-0.06	-0.08	0.01	0.00	0.04	80	-0.05	0.03	0.02	-0.11	-0.02
	All-OH-PAH	89	0.12	-0.10	0.06	0.10	0.06	80	-0.13	-0.10	-0.03	-0.37**	0.02
B) Karviná													
		Summer 2013						Winter 2014					
Subject	OH-PAH	N	Head circumference	Length	Weight	Placenta weight	Apgar 5'	N	Head circumference	Length	Weight	Placenta weight	Apgar 5'
Mothers	2-OH-FLUO	71	-0.19	0.09	0.13	0.09	0.08	74	0.07	0.30*	0.21	0.05	-
	1-OH-NAP	71	-0.24	-0.03	0.01	-0.11	0.16	74	-0.03	0.27	0.13	0.11	-
	2-OH-NAP	71	0.06	0.09	-0.05	0.19	-0.23	74	-0.05	-0.06	-0.04	0.03	-

	1-OH-PHEN	71	-0.07	0.10	0.04	0.19	0.02	74	0.24	0.21	0.35*	0.14	-
	2-OH-PHEN	71	-0.21	0.02	-0.03	0.32*	0.08	74	0.20	0.28*	0.22	-0.01	-
	3-OH-PHEN	71	-0.18	0.15	0.11	0.14	0.07	74	0.07	0.12	0.19	0.07	-
	4-OH-PHEN	71	-0.23	-0.09	-0.12	0.13	0.01	74	0.11	0.30*	0.16	-0.14	-
	9-OH-PHEN	71	0.03	0.22	0.17	0.05	-0.04	74	0.14	0.33*	0.22	-0.15	-
	1-OH-PYR	71	0.12	0.15	0.14	0.29*	-0.02	74	-0.10	0.11	0.03	-0.03	-
	All-OH-PAH	71	-0.02	0.11	-0.02	0.20	-0.21	74	-0.05	0.13	0.11	-0.03	-
Children	2-OH-FLUO	65	-0.17	-0.16	-0.19	-0.22	-0.10	50	0.11	0.23	0.19	-0.09	-
	1-OH-NAP	65	-0.17	-0.05	-0.03	-0.01	-0.05	50	-0.23	0.06	-0.11	-0.09	-
	2-OH-NAP	65	0.09	-0.06	-0.12	-0.05	-0.34**	50	0.23	0.09	0.17	-0.19	-
	1-OH-PHEN	65	-0.24	0.00	0.05	-0.10	-0.13	50	-0.16	-0.11	-0.11	-0.18	-
	2-OH-PHEN	65	-0.20	-0.07	-0.01	0.14	-0.11	50	-0.16	0.08	-0.12	-0.32*	-
	3-OH-PHEN	65	-0.43**	-0.19	-0.32**	-0.11	0.08	50	0.09	0.28*	0.11	-0.19	-
	4-OH-PHEN	65	-0.23	-0.18	-0.08	0.00	-0.06	50	0.05	0.11	-0.03	-0.33*	-
	9-OH-PHEN	65	-0.13	-0.07	-0.12	-0.14	-0.05	50	0.11	0.20	0.00	-0.30*	-
	1-OH-PYR	65	-0.03	0.09	0.08	0.21	-0.03	50	0.09	0.21	0.11	-0.32*	-
	All-OH-PAH	65	-0.06	-0.09	-0.15	-0.05	-0.31*	50	0.13	0.17	0.13	-0.35*	-
Note: Beta coefficient results of regression between PAH-OH and decrease of growth parameters * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.													