

# Prenatal exposure to low-level methylmercury alters the child's fine motor skills at the age of 18 months

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Table 1. General characteristics of the study populations of mother-child pairs.

	<b>n</b>	<b>205</b>
Boys, n (%)	102	(49.7%)
Girls, n (%)	103	(50.3%)
<b>Gestational age (weeks)</b> mean (min-max)	39.2	(34-41)
<b>Birthweight (g)</b> mean (min-max)	3591	(2400-4820)
<b>Mother's age at delivery (years)</b> mean (min-max)	30	(19-42)
<b>BMI (kg/m<sup>2</sup>) before pregnancy</b> mean (min-max)	22.8	(16.9-40.7)
<b>Education</b>		
Primary school, n (%)	5	(2 %)
Middle school, n (%)	122	(60 %)
High school, n (%)	20	(10 %)
University degree, n (%)	58	(28 %)
<b>Residential environment</b>		
Centre, n (%)	55	(27 %)
Periphery, n (%)	109	(53 %)
Rural, n (%)	41	(20 %)
<b>Breastfeeding in the 6<sup>th</sup> weeks of life</b>		
Exclusive or predominant, n (%)	142	(69 %)
Partial or formulae, n (%)	63	(31 %)
<b>Cigarette smoke during pregnancy</b>		
Yes	25	(12 %)
No	180	(88 %)
<b>No. of amalgam fillings</b>		
up to 3, n (%)	196	(96 %)
3-9, n (%)	9	(4 %)
10 or more, n (%)	0	(0 %)
<b>Consumption of sea fish</b>		
Less than once per month, n (%)	11	(5 %)
1-3 times per month, n (%)	67	(33 %)
At least once per week, n (%)	127	(62 %)

Table 2. Results of Bayley Scales of Infant and Toddler Development, Third Edition (BSID-III) in study subjects – children at age of 18 months (N=168)

No. study subject N=168	Arithmetic mean	Standard deviation	Median	Minimum	Maximum
<b>Composite cognitive development</b>	107,62	13,50	105,00	60,00	145,00
<b>Composite language development</b>	107,26	15,21	109,00	50,00	141,00
<b>Sub-scale Receptive language skills</b>	12,12	2,81	13,00	1,00	19,00
<b>Sub-scale Expressive language skills</b>	10,30	3,08	10,00	2,00	18,00
<b>Composite motor development</b>	107,97	10,54	107,00	58,00	139,00
<b>Sub-scale Fine motor skills</b>	11,90	2,26	12,00	4,00	19,00
<b>Sub-scale Gross motor skills</b>	10,66	2,16	10,00	2,00	18,00

Figure 1. Correlation between MeHg cord blood and THg cord blood concentration

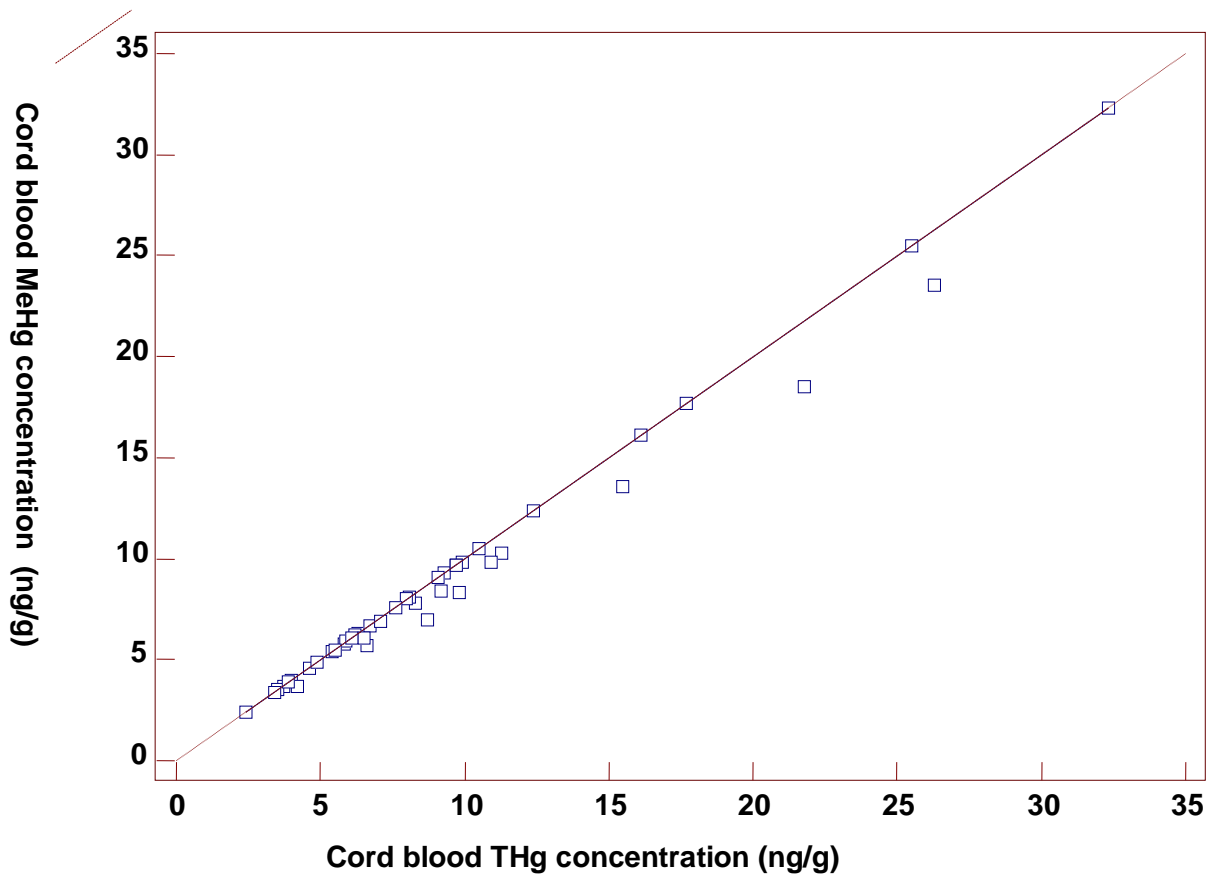


Table 3. Correlation between cord blood THg and scores of BSID-III

		<b>Composite cognitive develop.</b>	<b>Composite language develop.</b>	<b>Sub-scale receptive language skills</b>	<b>Sub-scale expressive language skills</b>	<b>Composite motor develop.</b>	<b>Sub-scale fine motor skills</b>	<b>Sub-scale gross motor skills</b>
<b>Cord blood THg level (ng/g)</b>	rho	-0.13	0.02	-0.04	0.08	-0.11	<b>-0.22</b>	0.09
	p	0.12	0.81	0.64	0.35	0.18	<b>0.01</b>	0.30
	N	135	135	135	135	135	<b>135</b>	135

rho:Spearman coefficient of correlation, p:statistical significance, N:number of children

Table 4. Comparison of cord blood THg level by inter-quartile range and fine motor skills BSID-III sub scale

<b>Cord blood THg quartile level (ng/g) (centile)</b>	<b>No.</b>	<b>Fine motor skills-BSID-III Median</b>	<b>Inter-quartile range</b>
<b>1. (<math>\leq 25.</math>)</b>	29	13	12-14
<b>2. (26.-50.)</b>	36	11	10,5-13
<b>3. (51.-75.)</b>	31	11	11-13
<b>4. (<math>&gt; 75.</math>)</b>	39	11	10-13

p=0.04

Table 5 Post-hoc analyses of cord blood THg level of 1<sup>st</sup> quartile versus 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> quartile regarding fine motor skills BSID-III sub scale

<b>Cord blood THg quartile level (ng/g) Centile</b>	<b><math>\beta</math> coefficient</b>	<b>p</b>
<b>2. (26.-50.)</b>	-1.24	<b>0.03</b>
<b>3. (51.-75.)</b>	-1.28	<b>0.03</b>
<b>4. (<math>&gt; 75.</math>)</b>	-1.45	<b>0.01</b>

Table 6. Post-hoc analyses of cord blood THg level of 1<sup>st</sup> quartile versus 2<sup>nd</sup>, 2<sup>nd</sup> versus 3<sup>rd</sup>, and 3<sup>rd</sup> versus 4<sup>th</sup> quartile regarding fine motor skills BSID-III sub scale

Cord blood THg quartile level (ng/g) Centile	$\beta$ coefficient	p
<b>2. (26.-50.)</b>	-1.24	<b>0.03</b>
3. (51.-75.)	-0,04	0.93
4. (> 75.)	-0,16	0.76

Table 7. Multivariate linear regression analyses adjusted for selected potentially confounding factors.

Variables	b coefficient	p
Cord blood THg level	0,06	0,28
Cerebellum lengths	0,12	0,06
FISH: boiled, grilled, fried	-0,06	0,85
CRABS: boiled, grilled, fried	1,08	0,40
MOLLUSCS: boiled, grilled, fried	0,14	0,85
FISH fried	0,20	0,65
CRABS fried	-2,98	0,06
MOLLUSCS fried	-0,07	0,95
TUNA, MACKEREL, SARDINES in oil	-0,71	<b>0,05</b>
Breastfeeding in 1 <sup>st</sup> week	-0,60	0,50
Breastfeeding in 2 <sup>nd</sup> week	1,77	0,08
Breastfeeding in 3 <sup>rd</sup> week	-1,05	0,37
Breastfeeding in 4 <sup>th</sup> week	1,37	0,22
Breastfeeding in 5 <sup>th</sup> week	-1,76	0,10
Breastfeeding in 5 <sup>th</sup> week	0,20	0,81
Mother age	0,06	0,40
Mother education	-0,10	0,75
Father education	-0,21	0,51
Smoking in pregnancy	-0,96	0,25
Alcohol intake/week in pregnancy	-0,08	0,47
Mother employment	-3,04	<b>0,02</b>
Father employment	-0,06	0,94
Rural environmental residence	0,69	0,35
Parity	-0,10	0,85

$R^2 = 0,27$     Corrected  $R^2 = 0,01$      $p = 0,43$