Supplementary material

Fetal and infant growth patterns and kidney function at school-age

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Imputation procedure

To reduce the possibility of potential bias associated with missing data and to maintain statistical power, missing values were imputed using the multiple imputations procedure.[1] For the multiple imputations, we used Fully Conditional Specification, an iterative of the Markov Chain Monte Carlo approach. For each variable, the fully conditional specification method fits a model using all other available variables in the model as predictors, and then imputes missing values for the specific variable being fit. In the imputation model for the analyses focused on the associations of early growth outcomes with kidney outcomes in childhood, we included all covariates except childhood body surface area plus maternal weight gain during pregnancy and height and weight of the child aged 6. Furthermore, we added the determinants and outcomes studied in the imputation model as prediction variables only. Determinants and outcomes were not imputed themselves. Five imputed datasets were created and analyzed together. For the conditional analyses only, we additionally imputed fetal and childhood growth characteristics using a similar imputation model.

1. Sterne JA, White IR, Carlin JB, et al. Multiple imputation for missing data in epidemiological and clinical research: potential and pitfalls. *BMJ (Clinical research ed.* 2009;338:b2393.

Table S1. Maternal and child characteristics for non-imputed and imputed data

	Non-imputed	Imputed
Maternal characteristics		
Age, yr	31.1 (21.2 to 38.8)	-
Height, cm	167.5 (7.4)	167.6 (7.4)
Pre-pregnancy body mass index, kg/m2	23.6 (4.2)	23.6 (4.3)
Parity ≥1, %	43.6 (2730)	44.0 (2852)
Ethnicity, %		
European	61.5 (3882)	61.2 (3964)
Non -European	38.5 (2428)	38.8 (2518)
Educational level, %		
No higher education	53.3 (3142)	54.5 (3534)
Higher education	46.7 (2750)	45.5 (2948)
Smoking, %		
No	74.7 (4199)	74.9 (4855)
Yes	25.3 (1423)	25.1 (1627)
Folic acid supplement use, %		
No	25.7 (1122)	23.4 (1601)
Preconceptional	43.2 (1930)	38.8 (2515)
Postconceptional	31.6 (1411)	37.8 (2189)
Infant characteristics		
Gestational age, weeks	40.1 (37.0 to 42.1)	-
Birth weight, g	3425 (558)	-
Breastfeeding, %		
No	7.6 (382)	7.9 (511)
Yes	92.4 (4662)	92.1 (5971)
Child characteristics		
Age, years	6.0 (5.7 to 7.5)	-
Height, cm	119.5 (6.1)	-
Weight, kg	23.3 (4.3)	-
Body mass index, kg/m^2	16.2 (1.9)	-
Kidney volume combined, cm^3	120.3 (23.5)	-
eGFR, ml/min per $1.73m^2$	118.8 (16.4)	-

Microalbuminuria %	6.8 (217)	-

Values are means (standard deviation), median (90% range) or percentage (number).
eGFR, estimated glomerular filtration rate

Table S2. Subject characteristics of subjects with and without childhood blood samples

	With blood sample (N = 4336)	Without blood sample (N = 2146)	P value
Maternal characteristics			
Age, yr	31.2 (21.4 to 38.7)	30.8 (20.9 to 38.4)	<0.001
Height, cm	167.7 (7.5)	167.1 (7.3)	0.002
Pre-pregnancy body mass index, kg/m2	23.6 (4.2)	23.6 (4.4)	0.969
Parity ≥1, %	44.9 (1875)	41.0 (855)	0.003
Ethnicity, %			0.409
European	60.2 (2610)	60.8 (1272)	
Non -European	38.1 (1608)	39.2 (820)	
Educational level, %			0.007
No higher education	52.1 (2053)	55.8 (1089)	
Higher education	47.9 (1888)	44.2 (862)	
Smoking, %			0.763
No	75.0 (2820)	74.0 (1379)	
Yes	24.9 (336)	8.7 (162)	
Folic acid supplement use, %			0.432
No	24.8 (739)	25.8 (383)	
Preconceptional	31.2 (930)	32.4 (481)	
Postconceptional	44.0 (1309)	41.8 (621)	
Infant characteristics			
Gestational age, weeks	40.1 (36.9 to 42.0)	40.1 (36.9 to 42.0)	0.685
Birth weight, g	3439 (548)	3397 (566)	0.004
Breastfeeding, %			0.705
No	7.5 (255)	7.8 (127)	
Yes	92.5 (3156)	92.2 (1506)	
Child characteristics			
Age, years	6.0 (5.7 to 7.5)	6.0 (5.7 to 7.1)	<0.001
Height, cm	119.7 (6.0)	118.9 (6.0)	<0.001
Weight, kg	23.4 (4.3)	23.1 (4.3)	0.009
Body mass index, kg/m^2	16.2 (1.9)	16.2 (2.0)	0.838

Kidney volume combined, cm^3	120.8 (23.6)	119.3 (23.1)	0.021
eGFR, ml/min per 1.73m^2	118.8 (16.4)	-	-
Microalbuminuria %	7.7 (324)	7.3 (149)	0.585

Values are means (standard deviation), median (90% range) or percentage (number)

T-tests were used for continuous variables, chi-square tests for categorical variables.

eGFR, estimated glomerular filtration rate

Table S3. Associations of birth outcomes with kidney volume and function at the age of 6 years: basic model

Birth characteristics	Difference (95% CI) in combined kidney volume (cm^3)	Difference (95% CI) in eGFR (ml/min per 1.73m^2)	Risk (Odds Ratio (95%CI)) of micro albuminuria
Gestational age N = 6,482			
< 34 weeks	-6.36**	-2.12	0.81
N = 98	(-11.15 to -1.56)	(-6.24 to 1.99)	(0.35 to 1.88)
34.0 – 35.9 weeks	-9.08**	2.85	0.64
N = 102	(-13.68 to -4.48)	(-1.06 to 6.76)	(0.26 to 1.60)
36.0 – 37.9 weeks	-3.58**	0.92	0.93
N = 514	(-5.83 to -1.32)	(-1.01 to 2.85)	(0.64 to 1.36)
38.0 - 39.9 weeks	*Reference*	*Reference*	*Reference*
N = 2199			
40.0-41.9 weeks	0.11	1.62**	1.01
N = 3131	(-1.17 to 1.39)	(0.54 to 2.71)	(0.82 to 1.24)
≥ 42.0 weeks	0.64	3.82**	1.02
N = 438	(-1.76 to 3.04)	(1.77 to 5.88)	(0.69 to 1.52)
Trend (SDS)	*1.60*	*0.86*	*1.02*
	(1.02 to 2.17)	*(0.36 to 1.36)*	*(0.93 to 1.13)*
P value	*< 0.001*	*0.001*	*0.656*
Birth weight N = 6,482			
<2,000 grams	-10.85**	-7.21**	0.65
N = 79	(-16.07 to -5.63)	(-11.95 to -2.48)	(0.24 to 1.80)
2,000-2,499 grams	-8.74**	0.39	0.79
N = 213	(-11.97 to -5.50)	(-2.49 to 3.27)	(0.44 to 1.42)
2,500-2,999 grams	-4.57**	-1.98*	1.17
N = 958	(-6.31 to -2.83)	(-3.51 to -0.45)	(0.89 to 1.54)
3,000-3,499 grams	*Reference*	*Reference*	*Reference*
N = 2,241			
3,500-3,999 grams	4.14**	1.28*	0.85
N = 2,072	(2.77 to 5.55)	(0.09 to 2.47)	(0.67 to 1.07)
4,000-4,499 grams	7.46**	1.81*	1.02

N = 756	(5.55 to 9.37)	(0.19 to 3.43)	(0.75 to 1.40)
≥ 4,500 grams	11.69**	2.14	1.26
N = 163	(8.01 to 15.37)	(-1.07 to 5.34)	(0.71 to 2.23)
Trend (SDS)	*4.64*	*1.20*	*0.98*
	(4.07 to 5.20)	*(0.71 to 1.70)*	*(-0.89 to 1.08)*
P value	*< 0.001*	*<0.001*	*0.658*
Birth weight for gestational age N = 6,482			
Small for gestational age	-9.05**	-2.34	0.79
N = 321	(-11.65 to -6.56)	(-4.69 to 0.02)	(0.49 to 1.26)
Normal for gestational age	*Reference*	*Reference*	*Reference*
N = 5,779			
Large for gestational age	9.05	2.26*	0.95
N = 321	(6.42 to 11.68))	(0.05 to 4.47)	(0.61 to 1.49)
Trend (SDS)	*4.52*	*0.96*	*0.93*
	(3.96 to 5.08)	*(0.47 to 1.45)*	*(0.85 to 1.03)*
P value	*< 0.001*	*< 0.001*	*0.934*

Values are regression coefficients (95% Confidence Interval) based on multiple regression models and reflect the difference for each outcome for the birth weight or gestational age group, as compared to the reference group. Values for analyses on microalbuminuria are Odds ratios (95% Confidence Interval) and reflect the Odds ratio for each outcome for the birth weight or gestational age group, as compared to the reference group. Models are adjusted for sex and current age. eGFR, estimated glomerular filtration rate *P<0.05 **P<0.01.

Table S4. Associations of birth outcomes with kidney outcomes at the age of 6 years with non-imputed data

Birth characteristics	Combined kidney volume (cm^3)	eGFR (ml/min per 1.73m^2)	Micro albuminuria (Odds Ratio)
Gestational age N = 6,482			
< 34 weeks	-21.84**	-4.82	1.68
N = 98	(-34.52 to -9.16)	(-16.70 to 7.05)	(0.20 to 13.91)
34.0 – 35.9 weeks	-5.36	3.44	0.90
N = 102	(-11.28 to 0.56)	(-2.29 to 9.18)	(0.27 to 3.00)
36.0 – 37.9 weeks	-2.52	1.22	1.06
N = 514	(-5.50 to -0.46)	(-1.66 to 4.10)	(0.59 to 1.90)
38.0 - 39.9 weeks N = 2199	*Reference*	*Reference*	*Reference*
40.0-41.9 weeks	-1.03	1.12	1.16
N = 3131	(-2.62 to 0.56)	(-0.41 to 2.66)	(0.85 to 1.59)
≥ 42.0 weeks	-0.64	2.65	1.39
N = 438	(-3.51 to 2.24)	(-0.15 to 5.45)	(0.83 to 2.34)
Trend (SDS)	*0.83*	*0.36*	*1.03*
	(0.03 to 1.63)	*(-0.41 to 1.13)*	*(0.88 to 1.20)*
P values	*0.041*	*0.360*	*0.730*
Birth weight N = 6,482			
<2,000 grams	-13.20**	-8.09	0.49
N = 79	(-21.76 to -4.64)	(-17.18 to 0.99)	(0.07 to 3.78)
2,000-2,499 grams	-3.92	2.49	0.98
N = 213	(-8.53 to 0.70)	(-2.07 to 7.06)	(0.41 to 2.36)
2,500-2,999 grams	-1.01	-2.14	0.97
N = 958	(-3.34 to 1.33)	(-4.41 to 0.14)	(0.63 to 1.49)
3,000-3,499 grams N = 2,241	*Reference*	*Reference*	*Reference*
3,500-3,999 grams	0.55	1.14	0.80
N = 2,072	(-1.18 to 2.28)	(-0.52 to 2.80)	(0.58 to 1.12)
4,000-4,499 grams	1.84	1.14	0.69
N = 756	(-0.56 to 4.23)	(-1.10 to 3.37)	(0.42 to 1.12)

≥ 4,500 grams	3.31	0.68	1.09
N = 163	(-1.46 to 8.12)	(-3.99 to 5.35)	(0.45 to 2.64)
Trend (SDS)	*1.58*	*0.63*	*0.94*
	(0.77 to 2.38)	*(-0.12 to 1.39)*	*(0.81 to 1.10)*
P value	*<0.001*	*0.099*	*0.441*
Birth weight for gestational age N = 6,482			
Small for gestational age	-4.60*	-1.88	0.66
N = 321	(-8.12 to -1.08)	(-5.39 to 1.63)	(0.30 to 1.44)
Normal for gestational age N = 5,779	*Reference*	*Reference*	*Reference*
Large for gestational age	0.72	2.31	1.02
N = 321	(-2.61 to 4.04)	(-0.69 to 5.31)	(0.53 to 1.93)
Trend (SDS)	*1.26*	*0.61*	*0.91*
	(0.48 to 2.05)	*(-0.11 to 1.34)*	*(0.79 to 1.06)*
P value	*0.002*	*0.097*	*0.234*

Values are regression coefficients (95% Confidence Interval) based on multiple regression models and reflect the difference for each outcome for the birth weight or gestational age group, as compared to the reference group. Values for analyses on microalbuminuria are Odds ratios (95% Confidence Interval) and reflect the Odds ratio for each outcome for the birth weight or gestational age group, as compared to the reference group. Models are adjusted for maternal age, body mass index, parity, ethnicity, educational level, folic acid supplementation and smoking during pregnancy, and child sex, breastfeeding, current age and body surface area. eGFR, estimated glomerular filtration rate.

*P<0.05 **P<0.01.

Table S5. Associations of birth outcomes with kidney outcomes at the age of 6 years adjusted for kidney volume

Birth characteristics	Difference (95% CI) in eGFR (ml/min per 1.73m^2)	Risk (Odds Ratio (95%CI)) of micro albuminuria
Gestational age N = 6,482		
< 34 weeks	-1.22	0.45
N = 98	(-8.63 to 6.19)	(0.06 to 3.36)
34.0 – 35.9 weeks	3.72	0.81
N = 102	(-0.79 to 8.22)	(0.25 to 1.98)
36.0 – 37.9 weeks	2.10	1.03
N = 514	(-0.24 to 4.45)	(0.81 to 1.32)
38.0 - 39.9 weeks N = 2199	*Reference*	*Reference*
40.0-41.9 weeks	1.92**	0.92
N = 3131	(0.64 to 3.20)	(0.70 to 1.21)
≥ 42.0 weeks	4.08**	1.07
N = 438	(1.70 to 6.46)	(0.65 to 1.77)
Trend (SDS)	*0.39*	*0.99*
	(-0.22 to 1.00)	*(0.87 to 1.12)*
P value	*0.205*	*0.827*
Birth weight N = 6,482		
<2,000 grams	-2.50	0.76
N = 79	(-8.42 to 3.42)	(0.23 to 2.50)
2,000-2,499 grams	2.13	0.87
N = 213	(-1.22 to 5.47)	(0.43 to 1.78)
2,500-2,999 grams	-1.61	1.06
N = 958	(-3.72 to 0.25)	(0.73 to 1.52)
3,000-3,499 grams N = 2,241	*Reference*	*Reference*
3,500-3,999 grams	0.36	0.75
N = 2,072	(-1.06 to 1.78)	(0.55 to 1.03)
4,000-4,499 grams	-0.28	0.71

N = 756	(-2.23 to 1.67)	(0.45 to 1.11)
≥ 4,500 grams	-1.05	1.17
N = 163	(-5.04 to 2.95)	(0.52 to 2.65)
Trend (SDS)	*0.09*	*0.93*
	(-0.55 to 0.72)	*(0.82 to 1.07)*
P value	*0.789*	*0.311*
Birth weight for gestational age N = 6,482		
Small for gestational age	-0.81	0.60
N = 321	(-3.64 to 2.02)	(0.30 to 1.19)
Normal for gestational age N = 5,779	*Reference*	*Reference*
Large for gestational age	0.66	1.18
N = 321	(-2.02 to 3.35)	(0.66 to 2.14)
Trend (SDS)	*-0.09*	*0.91*
	(-0.72 to 0.53)	*(0.79 to 1.04)*
P values	*0.771*	*0.151*

Values are regression coefficients (95% Confidence Interval) based on multiple regression models and reflect the difference for each outcome for the birth weight or gestational age group, as compared to the reference group. Values for analyses on microalbuminuria are Odds ratios (95% Confidence Interval) and reflect the Odds ratio for each outcome for the birth weight or gestational age group, as compared to the reference group. Models are adjusted for maternal age, body mass index, parity, ethnicity, educational level, folic acid supplementation and smoking during pregnancy, and child sex, breastfeeding, current age, body surface area and childhood kidney volume. eGFR, estimated glomerular filtration rate. *P<0.05 **P<0.01.

Table S6. Associations of fetal and length and weight with kidney volume and function at the age of 6 years: basic model

Growth characteristics	Difference (95% CI) in combined kidney volume (cm^3)	Difference (95% CI) in eGFR (ml/min per 1.73m^2)	Risk (Odds Ratio (95%CI)) of micro albuminuria
Length			
Second trimester (SDS)	0.84**	-0.15	0.97
N = 5553	(0.23 to 1.46)	(-0.67 to 0.37)	((0.88 to 1.08)
Third trimester (SDS)	2.35**	0.37	0.98
N = 5711	(1.73 to 2.96)	(-0.16 to 0.89)	(0.89 to 1.08)
Birth (SDS)	2.53**	0.49	0.97
N = 3963	(1.91 to 3.15)	(-0.06 to 1.04)	(0.87 to 1.08)
6 months (SDS)	6.48**	2.09**	1.05
N = 4242	(5.77)	(1.45 to 2.73)	(0.93 to 1.19)
12 months (SDS)	6.98**	2.01**	1.10
N= 4369	(6.28 to 7.68)	(1.37 to 2.66)	(0.97 to 1.24)
24 months (SDS)	7.37**	2.08**	1.08
N= 4066	(6.70 to 8.05)	(1.46 to 2.69)	(0.96 to 1.21)
36 months (SDS)	8.47**	2.07**	1.05
N= 3890	(7.80 to 9.13)	(1.45 to 2.69)	(0.93 to 1.18)
48 months (SDS)	8.25**	1.85**	1.08
N= 3446	(7.53 to 8.96)	(1.19 to 2.51)	(0.96 to 1.23)
72 months (SDS)	9.40**	2.26**	1.02
N= 6473	(8.88 to 9.91)	(1.77 to 2.74)	(0.93 to 1.12)
Weight			
Second trimester (SDS)	2.03**	0.41	0.91
N = 5523	(1.40 to 2.66)	(-0.12 to 0.93)	(0.82 to 1.01)
Third trimester (SDS)	3.58**	0.97**	0.97
N = 5692	(2.99 to 4.18)	(0.47 to 1.48)	(0.88 to 1.07)
Birth (SDS)	4.52**	0.96**	0.93
N = 6421	(3.96 to 5.08)	(0.47 to 1.45)	(0.85 to 1.03)
6 months (SDS)	6.53**	0.50	0.98

N = 4734	(5.86 to 7.20)	(-0.12 to 1.11)	(0.87 to 1.11)
12 months (SDS)	7.17**	0.71*	1.05
N = 4376	(6.49 to 7.84)	(0.07 to 1.35)	(0.93 to 1.18)
24 months (SDS)	8.63**	1.25**	0.97
N = 4124	(7.97 to 9.29)	(0.64 to 1.87)	(0.86 to 1.09)
36 months (SDS)	9.06**	1.18**	0.95
N = 3934	(8.41 to 9.72)	(0.55 to 1.80)	(0.85 to 1.07
48 months (SDS)	9.22**	0.91**	0.93
N = 3459	(8.53 to 9.90)	(0.25 to 1.57)	(0.82 to 1.05)
72 months (SDS)	10.47**	1.02**	0.88
N = 3473	(9.98 to 10.95)	(0.55 to 1.50)	(0.81 to 0.97)

Values are regression coefficients (95% CI) based on multiple regression models and reflect the difference for each kidney volume and function outcome per change in SDS of fetal and early childhood length or weight. Values for analyses on microalbuminuria are Odds ratios (95% CI) and reflect the difference for each kidney volume and function outcome per change in SDS of fetal and early childhood length or weight. Models are adjusted for sex and current age. eGFR, estimated glomerular filtration rate. *P<0.05 **P<0.01.

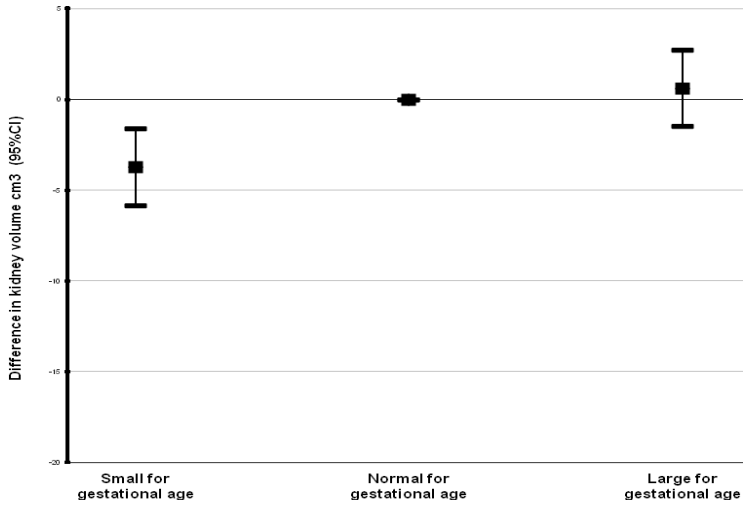
Table S7. Associations of fetal and length and weight with kidney volume and function at the age of 6 years: confounder model

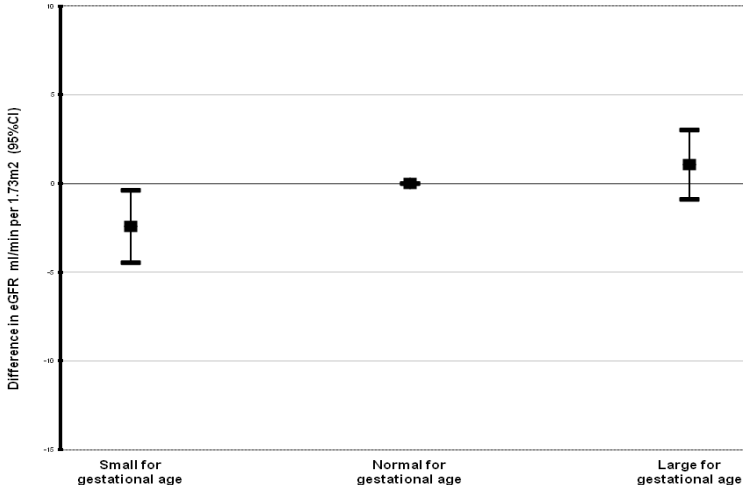
Growth characteristics	Difference (95% CI) in combined kidney volume (cm^3)	Difference (95% CI) in eGFR (ml/min per 1.73m^2)	Risk (Odds Ratio (95%CI)) of micro albuminuria
Length			
Second trimester (SDS) N = 5553	-0.42 (-1.14 to 0.04)	-0.30 (-0.86 to 0.27)	0.98 (0.88 to 1.10)
Third trimester (SDS) N = 5711	-0.39 (-0.98 to 0.21)	0.11 (-0.45 to 0.67)	0.94 (0.84 to 1.06)
Birth (SDS) N = 3963	-0.11 (-0.74 to 0.53)	0.39 (-0.23 to 0.99)	0.98 (0.87 to 1.10)
6 months (SDS) N = 4242	0.76 (-0.15 to 1.68)	1.85** (1.09 to 2.61)	1.08 (0.90 to 1.28)
12 months (SDS) N= 4369	0.23 (-0.72 to 1.17)	1.73** (0.99 to 2.48)	1.25* (1.05 to 1.50)
24 months (SDS) N= 4066	-0.42 (-1.43 to 0.58)	1.83** (1.13 to 2.53)	1.30** (1.09 to 1.56)
36 months (SDS) N= 3890	0.71 (-0.47 to 1.89)	1.88** (1.16 to 2.59)	1.37** (1.10 to 1.72)
48 months (SDS) N= 3446	-0.91 (-2.20 to 0.38)	1.79** (1.08 to 2.52)	1.27 (1.00 to 1.62)
72 months (SDS) N= 6473	-1.00 (-2.14 to 0.14)	1.94** (1.39 to 2.49)	1.45** (1.16 to 1.81)
Weight			
Second trimester (SDS) N = 5523	0.63* (0.02 to 1.23)	0.37 (-0.21 to 0.94)	0.91 (0.81 to 1.02)
Third trimester (SDS) N = 5692	1.13** (0.55 to 1.72)	0.71* (0.16 to 1.26)	0.92 (0.82 to 1.03)
Birth (SDS) N = 6421	1.33** (0.72 to 1.94)	0.84** (0.27 to 1.42)	0.94 (0.83 to 1.05)

6 months (SDS)	1.51**	0.25	1.02
N = 4734	(0.69 to 2.32)	(-0.48 to 0.97)	(0.88 to 1.19)
12 months (SDS)	1.19*	0.56	1..09
N = 4376	(0.28 to 2.10)	(-0.17 to 1.29)	(0.92 to 1.30)
24 months (SDS)	1.28*	1.06**	1.01
N = 4124	(0.19 to 2.36)	(0.37 to 1.76)	(0.83 to 1.24)
36 months (SDS)	1.81**	1.02**	0.98
N = 3934	(0.54 to 3.09)	(0.31 to 1.73)	(0.78 to 1.24)
48 months (SDS)	0.95	0.92*	0.84
N = 3459	(-0.53 to 2.44)	(0.17 to 1.67)	(0.65 to 1.09)
72 months (SDS)	2.13*	0.83**	0.72
N = 3473	(0.01 to 4.24)	(0.29 to 1.38)	(0.48 to 1.07)

Values are regression coefficients (95% Confidence Interval) based on multiple regression models and reflect the difference for each kidney outcome per change in SDS of fetal and early childhood length or weight. Values for analyses on microalbuminuria are Odds ratios (95% Confidence Interval) and reflect the difference for each kidney volume and function outcome per change in SDS of fetal and early childhood length or weight. Models are adjusted for maternal age, body mass index, parity, ethnicity, educational level, smoking, total daily calorie intake and alcohol consumption during pregnancy, and gestational age, child sex, breastfeeding and current age and body surface area. eGFR, estimated glomerular filtration rate *P<0.05 **P<0.01.

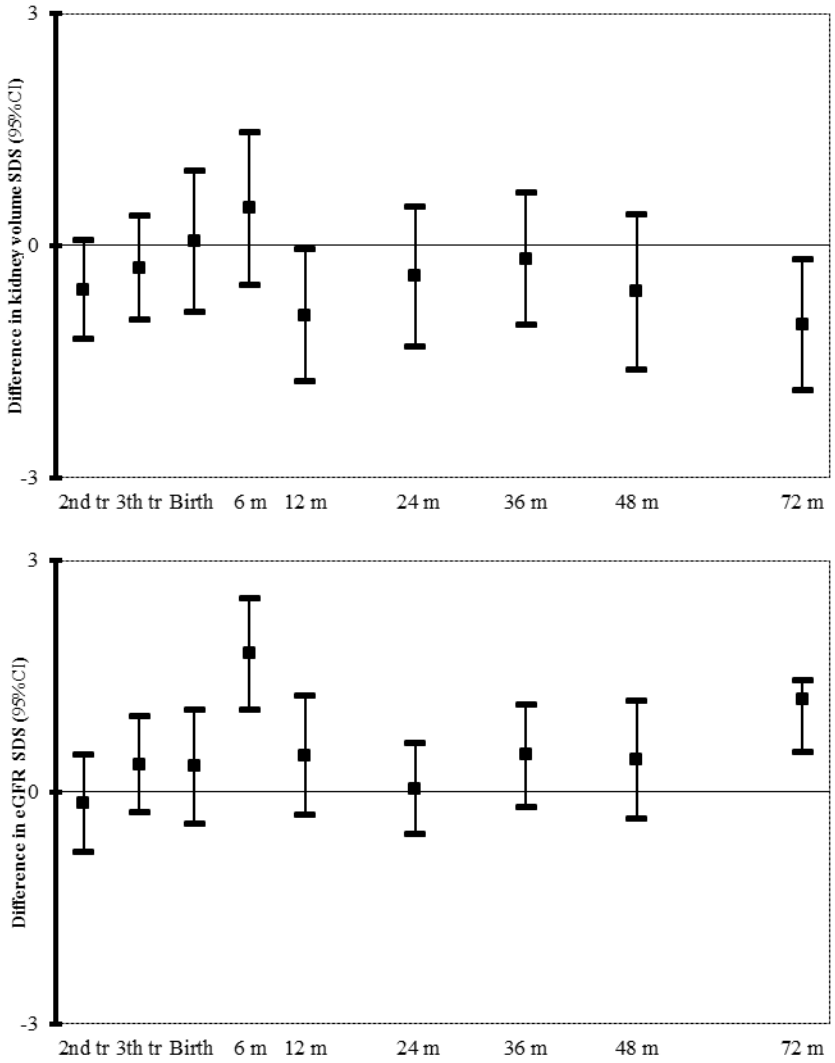
Figure S1. Association of small and large size size for gestational age with kidney volume and function at the age of 6 years





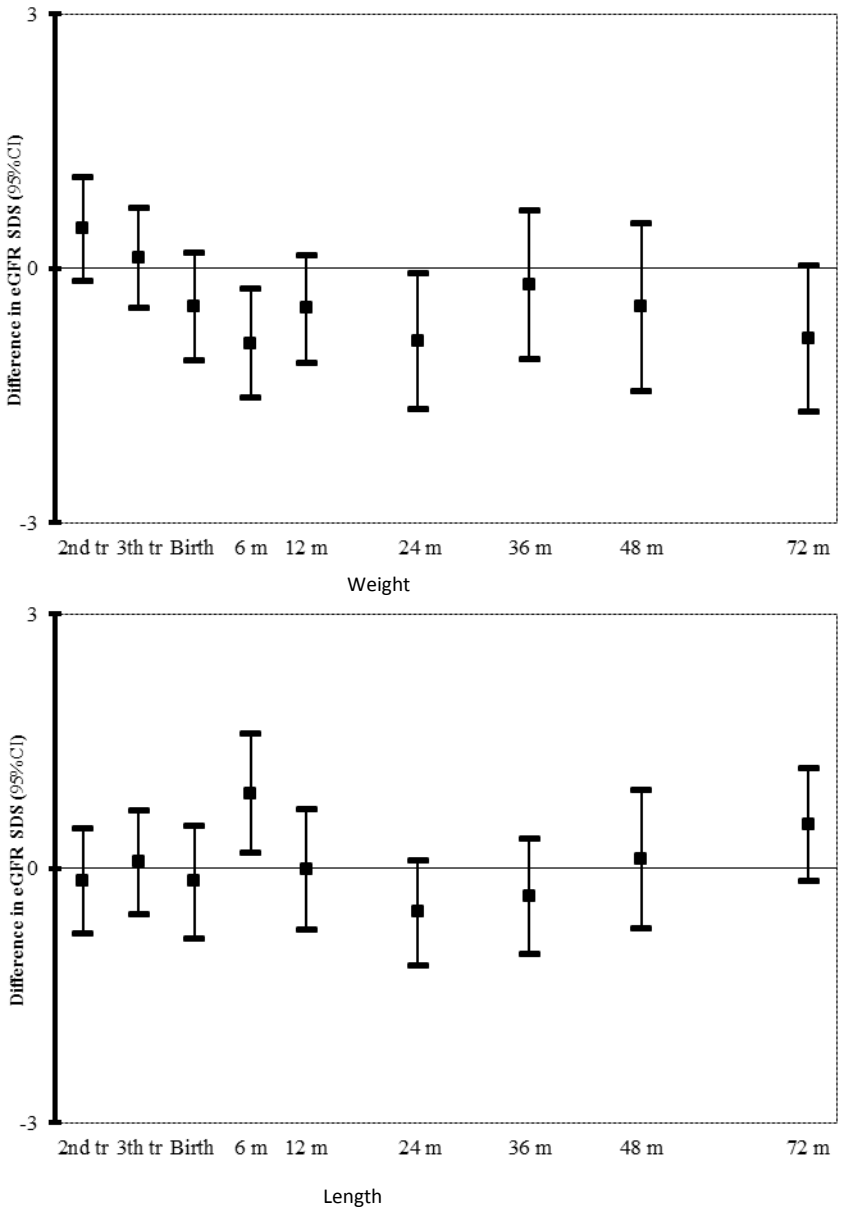
Bars represent regression coefficients (95% Confidence Interval) based on multiple regression models and reflect the difference for each kidney outcome between small (<10%), normal (10-90%) and large (>90%) size for gestational age born children. Models are adjusted for maternal age, body mass index, parity, ethnicity, educational level, folic acid supplementation and smoking during pregnancy, and child sex, breastfeeding, current age and body surface area. eGFR, estimated glomerular filtration rate. β for trend (95% Confidence Interval)

Figure S2. Associations of fetal and childhood length with kidney outcomes at the age of 6 years



Effect estimates ((95% Confidence Interval) represent regression coefficients based on multiple regression models and reflect the difference per 1 SD increase in standardized residual score for (estimated) length measures at different time points (see details for conditional regression models in Supplementary Material). Models are adjusted for maternal age, body mass index, parity, ethnicity, educational level, folic acid supplementation and smoking during pregnancy, and child sex, breastfeeding and current age. Models focused on kidney volume were additionally adjusted for body surface area. eGFR, estimated glomerular filtration rate.

Figure S3. Associations of fetal and childhood weight and length with estimated glomerular filtration rate at the age of 6 years adjusted for kidney volume



Effect estimates ((95% Confidence Interval) represent regression coefficients based on multiple regression models and reflect the difference per 1 SD increase in standardized residual score for (estimated) weight and length measures at different time points (see details for conditional regression models in Supplementary Material). Models are adjusted for maternal age, body mass index, parity, ethnicity, educational level, folic acid supplementation and smoking during pregnancy, and child sex, breastfeeding, current age and kidney volume at the age of 6 years. eGFR, estimated glomerular filtration rate.