

SUPPLEMENTARY DATA

Supplementary Table 1. Baseline characteristics of participants and non-participants.

	Participants (N=1,718)	Non-participants (N=1,455)	P-value
	17.0±3.1	17.2±3.7	0.14
BMI (kg/m ²)	98.5±9.9	102.2±11.2	<0.001
SBP (mmHg)	50.9±9.2	62.2±8.7	<0.001
DBP (mmHg)	164.1±30.2	162.4±27.6	0.12
TC (mg/dl)	66.8±33.9	68.4±33.3	0.17
TG (mg/dl)	90.4±24.8	89.4±24.3	0.25
LDL-C (mg/dl)	66.1±21.6	64.6±20.2	0.063
HDL-C (mg/dl)	87.0±9.3	85.1±13.1	0.11
FPG (mg/dl)			

Values are mean±SDs.

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Supplementary Table 2 Associations between variabilities in cardiovascular risk factors in childhood and diabetes risk in adulthood

SD	Odds ratio	CV	Odds ratio	RSD	Odds ratio	DEV	Odds ratio
BMI	1.45 (1.22-1.72)	BMI	1.50 (1.24-1.81)	BMI	1.28 (1.10-1.50)	BMI	1.27 (1.09-1.49)
SBP	0.85 (0.70-1.04)	SBP	0.81 (0.66-1.02)	SBP	1.03 (0.86-1.23)	SBP	1.08 (0.90-1.28)
TC	0.87 (0.71-1.08)	TC	0.96 (0.79-1.17)	TC	1.07 (0.82-1.39)	TC	1.14 (0.87-1.50)
TG	0.91 (0.75-1.10)	TG	0.89 (0.73-1.08)	TG	0.99 (0.82-1.19)	TG	0.99 (0.82-1.20)
LDL-C	1.15 (0.94-1.40)	LDL-C	1.17 (0.96-1.43)	LDL-C	1.05 (0.80-1.37)	LDL-C	0.98 (0.75-1.30)
HDL-C	1.35 (1.12-1.62)	HDL-C	1.26 (1.07-1.49)	HDL-C	1.16 (1.02-1.34)	HDL-C	1.11 (1.00-1.33)

Values are odds ratio (95% confidence intervals) from logistic regression analyses.

SD, standard deviation; CV, coefficient of variation; RSD, residual standard deviation; DEV, deviation from age-predicted values; BMI, Body mass index; SBP, systolic blood pressure; TC, total cholesterol; TG, triglycerides; LDL-C, low density lipoprotein cholesterol; HDL-C, high density lipoprotein cholesterol.

All indices of variability for each risk factor were Z-transformed (mean = 0, SD =1).

In the model, all variabilities in childhood cardiovascular risk factors (BMI, SBP, TC, TG, LDL-C and HDL-C) are entered simultaneously together with childhood mean age, sex, race, adulthood age, parental history of diabetes, drinking and smoking status, parents' educational attainment, household income, and use of anti-hypertensive and lipid-lowering agents.

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Supplementary Table 3 Associations between variabilities in cardiovascular risk factors in childhood and diabetes in later life among 2,401 participants who had measurements of studied cardiovascular risk factors at least 3 times during childhood

		Model 1	Model 2	Model 3	Model 4
BMI	SD	1.64 (1.44-1.86)	1.57 (1.38-1.80)	1.44 (1.21-1.71)	-
	CV	1.61 (1.39-1.86)	1.57 (1.35-1.82)	-	-
	DEV	1.40 (1.25-1.56)	1.34 (1.19-1.50)	1.36 (1.11-1.66)	-
	RSD	1.41 (1.26-1.58)	1.36 (1.21-1.52)	1.29 (1.06-1.58)	-
HDL-C	SD	1.25 (1.10-1.42)	1.26 (1.09-1.44)	1.27 (1.11-1.46)	1.20 (1.04-1.39)
	CV	1.32 (1.17-1.49)	1.26 (1.11-1.44)	-	1.18 (1.03-1.35)
	DEV	1.21 (1.05-1.38)	1.17 (1.01-1.34)	1.14 (1.02-1.32)	1.13 (1.02-1.33)
	RSD	1.24 (1.08-1.42)	1.21 (1.06-1.40)	1.20 (1.04-1.38)	1.18 (1.03-1.37)
SBP	SD	0.99 (0.85-1.16)	0.98 (0.83-1.14)	0.95 (0.82-1.12)	0.95 (0.81-1.13)
	CV	0.94 (0.81-1.10)	0.93 (0.80-1.10)	-	0.94 (0.80-1.12)
	DEV	1.20 (1.06-1.38)	1.14 (0.99-1.31)	1.08 (0.94-1.26)	1.07 (0.92-1.25)
	RSD	1.19 (1.05-1.37)	1.14 (0.99-1.31)	1.08 (0.94-1.26)	1.05 (0.91-1.23)
DBP	SD	1.05 (0.91-1.22)	1.07 (0.94-1.26)	1.09 (0.94-1.26)	1.09 (0.93-1.27)
	CV	1.02 (0.88-1.18)	1.07 (0.92-1.25)	-	1.10 (0.94-1.29)
	DEV	1.03 (0.89-1.19)	1.01 (0.88-1.17)	1.01 (0.87-1.17)	0.98 (0.85-1.15)
	RSD	1.04 (0.90-1.20)	1.04 (0.89-1.20)	1.04 (0.90-1.20)	1.01 (0.87-1.18)
TC	SD	1.23 (1.08-1.40)	1.20 (1.04-1.37)	1.23 (1.06-1.43)	1.16 (0.96-1.35)
	CV	1.24 (1.08-1.41)	1.23 (1.07-1.42)	-	1.17 (0.96-1.45)
	DEV	1.20 (1.06-1.36)	1.12 (0.98-1.27)	1.15 (0.99-1.32)	1.18 (0.99-1.40)
	RSD	1.23 (1.09-1.40)	1.15 (1.01-1.31)	1.19 (1.03-1.38)	1.15 (0.99-1.33)
TG	SD	1.06 (0.92-1.22)	1.05 (0.91-1.22)	1.01 (0.87-1.18)	0.96 (0.83-1.13)
	CV	1.02 (0.88-1.18)	1.03 (0.88-1.19)	-	0.97 (0.84-1.14)
	DEV	1.22 (1.07-1.39)	1.16 (1.01-1.33)	1.07 (0.91-1.24)	1.06 (0.90-1.24)
	RSD	1.26 (1.11-1.44)	1.21 (1.06-1.39)	1.13 (0.96-1.31)	1.11 (0.94-1.29)
LDL-C	SD	1.24 (1.09-1.41)	1.18 (1.03-1.36)	1.19 (1.02-1.38)	1.12 (0.95-1.31)
	CV	1.19 (1.04-1.36)	1.19 (1.04-1.37)	-	1.13 (0.98-1.31)
	DEV	1.22 (1.08-1.38)	1.11 (0.98-1.27)	1.11 (0.95-1.29)	1.14 (0.97-1.33)
	RSD	1.26 (1.12-1.42)	1.15 (1.02-1.31)	1.17 (0.96-1.36)	1.18 (0.97-1.38)

Values are odds ratio (95% confidence intervals) from logistic regression analyses.

Model 1 was adjusted for childhood mean age, sex, race, and adulthood age.

Model 2 was adjusted for childhood mean age, sex, race, adulthood age, parental history of diabetes, drinking and smoking status, use of anti-hypertensive and lipid-lowering agents.

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Model 3 was adjusted for variables in model 2 plus their respective mean values of cardiovascular risk factors during childhood. For instance, childhood mean BMI was added in model 3 when examine the association between BMI variability and diabetes.

Model 4 was adjusted for variables in model 3 plus adulthood BMI, BMI variability in childhood, parents' educational attainment, and household income.

BMI, Body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; TC, total cholesterol; TG, triglycerides; LDL-C, low density lipoprotein cholesterol; HDL-C, high density lipoprotein cholesterol; SD, standard deviation; CV, coefficient of variation; DEV, deviation from age-predicted values; RSD, residual standard deviation.