

Supplementary Table S1. Characteristics of the subpopulations according to gender and age.

	Boys aged <10 years (n=57)	Boys aged ≥10 years (n=256)	Girls aged <10 years (n=72)	Girls aged ≥10 years (n=252)
Age	9 (8 - 9)	12 (11 - 13)	9 (8 - 9)	12 (11 - 14)
Height	1.39 (1.35 - 1.44)	1.58 (1.5 - 1.67)	1.41 (1.35 - 1.45)	1.57 (1.5 - 1.62)
Weight	48 (43.5 - 53)	73.5 (61.7 - 90)	50.1 (45.2 - 55.7)	77 (65.4 - 86.5)
BMI	25.2 (23.9 - 27)	29.3 (27.2 - 31.8)	25.3 (24.1 - 27)	31.1 (28.6 - 33.3)
BMI z-score	3.1 (2.9 - 3.6)	2.9 (2.6 - 3.1)	2.7 (2.6 - 3.1)	2.8 (2.6 - 3)
WC	82 (79 - 86)	97 (91 - 104)	82 (78 - 87)	96 (89 - 103)
WHR	0.59 (0.57 - 0.65)	0.62 (0.59 - 0.65)	0.59 (0.56 - 0.63)	0.62 (0.58 - 0.66)
ABSI	0.0821 (0.0784 - 0.084)	0.0813 (0.0783 - 0.0837)	0.0797 (0.0777 - 0.0838)	0.078 (0.0741 - 0.0816)
Glucose	84 (80 - 89)	86 (81 - 90)	82 (78 - 87)	85 (80 - 91)
HOMA-IR	2.09 (1.43 - 3.5)	3.31 (2.3 - 4.69)	2.47 (1.87 - 3.88)	3.66 (2.59 - 5.14)
HOMA β	178.6 (120.7 - 247.8)	256.7 (174.3 - 370.4)	239.6 (169.1 - 341)	276.5 (196.3 - 435.3)
QUICK	0.34 (0.32 - 0.36)	0.32 (0.31 - 0.34)	0.33 (0.31 - 0.35)	0.32 (0.3 - 0.33)
TyG index	4.37 (4.15 - 4.51)	4.44 (4.27 - 4.6)	4.41 (4.25 - 4.63)	4.4 (4.25 - 4.57)
TG	71 (48 - 99)	84 (59 - 117)	81 (61 - 126)	79 (58 - 107)
TC	154 (142 - 178)	157 (142 - 180)	155 (142 - 177)	154 (136 - 175)
HDL-C	52 (46 - 57)	45 (39 - 53)	46 (41 - 54)	47 (40 - 54)
LDL-C	92 (77 - 108)	96 (78 - 114)	94 (83 - 111)	91 (77 - 110)
TG/HDL ratio	1.48 (0.95 - 2.06)	1.81 (1.16 - 2.71)	1.72 (1.25 - 3.1)	1.69 (1.19 - 2.35)
VAI	0.77 (0.48 - 1.09)	1.05 (0.66 - 1.61)	1.36 (0.93 - 2.2)	1.37 (0.95 - 1.96)
SBP	105 (100 - 110)	115 (110 - 120)	105 (99 - 113)	114 (109 - 120)
DBP	60 (58 - 70)	70 (60 - 77)	60 (57 - 70)	70 (63 - 75)
MetS	18 (31.6%)	21 (8.2%)	26 (36.1%)	14 (5.6%)

Body Mass Index z-score (BMI z-score), Waist Circumference (WC), Waist-to-Height Ratio (WHR), A Body Shape Index (ABSI), Homeostatic Model Assessment Index – Insulin Resistance (HOMA-IR), Homeostatic Model Assessment Index -β (HOMA-β), Quantitative Insulin sensitivity Check Index (QUICKI), Triglyceride Glucose Index (TyG index), Triglycerides (TG), Total cholesterol (TC), High-Density Lipoprotein cholesterol (HDL-C), Low-Density Lipoprotein cholesterol (LDL-C), Triglycerides-to-HDL ratio (TG/HDL ratio), Visceral Adiposity Index (VAI), Systolic blood pressure (SBP), Diastolic blood pressure (DBP), Metabolic Syndrome (MetS).

Supplementary Table S2. Heatmap of correlations of VAI with adiposity indices, glyco-metabolic indices, lipids, TG/HDL-C ratio and blood pressure in the subpopulations according to gender and age.

		VAI							
		Whole cohort	Boys	Boys <10 years	Boys ≥10 years	Girls	Girls <10 years	Girls ≥10 years	
BMI	q	0.21	0.32	0.14	0.26	0.07	-0.05	0.09	
	P	<0.001	<0.001	0.311	<0.001	0.237	0.654	0.145	
BMI z-score	q	-0.02	0.01	0.16	0.07	0.06	-0.13	0.12	
	P	0.716	0.798	0.246	0.277	0.285	0.270	0.052	
WC	q	0.26	0.37	0.27	0.32	0.22	0.14	0.28	
	P	<0.001	<0.001	0.039	<0.001	<0.001	0.246	<0.001	
WHR	q	0.23	0.21	0.30	0.18	0.28	0.18	0.32	q
	P	<0.001	<0.001	0.026	0.004	<0.001	0.137	<0.001	-1.00
ABSI	q	0.10	0.08	0.23	0.05	0.28	0.28	0.30	-0.75
	P	0.015	0.182	0.088	0.383	<0.001	0.020	<0.001	-0.50
Glycemia	q	-0.06	0.03	0.02	0.00	-0.12	-0.06	-0.13	-0.25
	P	0.116	0.634	0.857	0.972	0.039	0.631	0.044	0.00
HOMA - IR	q	0.38	0.47	0.35	0.44	0.28	0.36	0.29	0.25
	P	<0.001	<0.001	0.008	<0.001	<0.001	0.003	<0.001	0.50
HOMA -β	q	0.46	0.47	0.40	0.44	0.42	0.46	0.41	0.75
	P	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	1.00
QUICKI	q	-0.38	-0.46	-0.36	-0.44	-0.29	-0.36	-0.29	
	P	<0.001	<0.001	0.007	<0.001	<0.001	0.003	<0.001	
TyG index	q	0.86	0.92	0.92	0.92	0.88	0.87	0.88	
	P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
TG	q	0.88	0.93	0.94	0.93	0.91	0.91	0.91	
	P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
TC	q	0.21	0.23	0.32	0.23	0.26	0.09	0.31	
	P	<0.001	<0.001	0.017	<0.001	<0.001	0.467	<0.001	
HDL-C	q	-0.63	-0.70	-0.65	-0.67	-0.61	-0.74	-0.56	
	P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LDL-C	q	0.28	0.28	0.41	0.25	0.35	0.27	0.37	
	P	<0.001	<0.001	0.001	<0.001	<0.001	0.022	<0.001	
TG/HDL ratio	q	0.95	0.99	0.99	0.99	0.99	0.99	0.99	
	P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
SBP	q	0.11	0.20	0.25	0.13	0.05	0.26	0.00	
	P	0.009	0.001	0.066	0.045	0.369	0.040	0.941	
DBP	q	0.03	0.03	-0.09	-0.01	0.03	0.06	0.02	
	P	0.456	0.566	0.526	0.902	0.629	0.657	0.766	

Body Mass Index z-score (BMI z-score), Waist Circumference (WC), Waist-to-Height Ratio (WHR), A Body Shape Index (ABSI), Homeostatic Model Assessment Index – Insulin Resistance (HOMA-IR), Homeostatic Model Assessment Index - β (HOMA-β), Quantitative Insulin sensitivity Check Index (QUICKI), Triglyceride Glucose Index (TyG index), Triglycerides (TG), Total cholesterol (TC), High-Density Lipoprotein cholesterol (HDL-C), Low-Density Lipoprotein cholesterol (LDL-C), Triglycerides-to-HDL ratio (TG/HDL ratio), Visceral Adiposity Index (VAI), Systolic blood pressure (SBP), Diastolic blood pressure (DBP). Color coding according to Spearman correlation coefficient (q).