

Supplementary table 1. Multiple linear regression analyses of maximal oxygen consumption (VO_{2max}, ml/kg/min), systolic blood pressure (SBP, mm Hg), diastolic blood pressure (DBP, mm Hg), total cholesterol/ high-density lipoprotein cholesterol (TC/HDL, mg/dL) and low-density lipoprotein cholesterol (LDL, mg/dL) with anthropometric and body composition indices.

	Boys				Girls			
	Adjusted R ²	β	SE	P	Adjusted R ²	β	SE	P
<i>Independent variables</i>	VO_{2 max} (n=2146)							
Neck circumference	0.231	-1.173	0.062	<0.001	0.018	-0.467	0.081	<0.001
Body mass index	0.253	-0.910	0.047	<0.001	0.044	-0.497	0.044	<0.001
Waist circumference	0.231	-0.379	0.022	<0.001	0.037	-0.197	0.019	<0.001
Waist-to-height ratio	0.113	-61.143	3.823	<0.001	0.039	-31.074	3.138	<0.001
Body fat percentage	0.285	-0.339	0.016	<0.001	0.066	-0.266	0.018	<0.001
Fat mass index	0.111	-0.684	0.036	<0.001	0.058	-0.492	0.039	<0.001
	SBP (n=2191)							
Neck circumference	0.353	2.526	0.155	<0.001	0.353	2.526	0.155	<0.001
Body mass index	0.239	1.237	0.100	<0.001	0.168	1.059	0.096	<0.001
Waist circumference	0.281	0.552	0.042	<0.001	0.200	0.515	0.042	<0.001
Waist-to-height ratio	0.053	66.232	7.317	<0.001	0.042	57.874	6.994	<0.001
Body fat percentage	0.047	0.279	0.033	<0.001	0.127	0.436	0.042	<0.001
Fat mass index	0.033	0.531	0.073	<0.001	0.026	0.603	0.090	<0.001
	DBP (n=2191)							
Neck circumference	0.113	1.195	0.111	<0.001	0.089	1.216	0.133	<0.001
Body mass index	0.132	0.793	0.061	<0.001	0.095	0.741	0.071	<0.001
Waist circumference	0.126	0.293	0.023	<0.001	0.105	0.328	0.030	<0.001
Waist-to-height ratio	0.058	46.204	4.984	<0.001	0.035	47.497	5.554	<0.001
Body fat percentage	0.065	0.198	0.022	<0.001	0.092	0.323	0.035	<0.001
Fat mass index	0.061	0.434	0.049	<0.001	0.047	0.588	0.072	<0.001
	Total cholesterol/HDL cholesterol (n=514)							
Neck circumference	0.098	0.098	0.015	<0.001	0.048	0.073	0.019	<0.001
Body mass index	0.148	1.715	0.183	<0.001	0.045	0.003	0.010	<0.001
Waist circumference	0.106	0.022	0.003	<0.001	0.030	0.027	0.005	<0.001
Waist-to-height ratio	0.222	5.999	0.617	0.001	0.126	4.562	0.688	<0.001
Body fat percentage	0.226	0.025	0.003	<0.001	0.081	0.032	0.005	<0.001
Fat mass index	0.143	0.062	0.009	<0.001	0.143	0.062	0.009	<0.001
	LDL cholesterol (n=513)							
Neck circumference	0.013	1.377	0.663	0.039	0.007	-0.844	0.516	0.103
Body mass index	0.001	0.445	0.407	0.275	<0.001	-0.400	0.390	0.306
Waist circumference	<0.001	0.094	0.152	0.535	0.002	-0.205	0.169	0.225
Waist-to-height ratio	0.002	39.593	30.87	0.201	<0.001	25.630	31.298	0.414
Body fat percentage	0.002	0.186	0.147	0.209	<0.001	-0.046	0.187	0.806
Fat mass index	0.002	0.354	0.286	0.216	0.004	0.560	0.400	0.162

Significant results are in **bold** (p < 0.05).

β indicates estimated unstandardized regression coefficient; SE, standard error.

All analyses were controlled for age and Tanner stage.

Supplementary table 2. Multiple linear regression analyses of triglycerides (mg/dL), of insulin resistance (HOMA score), C-reactive protein (CRP, mg/dL), C3-protein (C-3, mg/dL) and C4-protein (C-4, mg/dL) with anthropometric and body composition indices.

	Boys				Girls			
	Adjusted	β	SE	P	Adjusted R ²	β	SE	P
<i>Independent variables</i>								
Triglycerides (n=514)								
Neck circumference	0.038	1.669	0.490	<0.001	0.042	1.799	0.553	<0.001
Body mass index	0.033	1.669	0.524	<0.001	0.037	1.262	0.416	<0.001
Waist circumference	0.053	0.748	0.193	<0.001	0.042	0.590	0.181	0.001
Waist-to-height ratio	0.019	97.477	41.998	0.003	<0.001	0.108	1.690	0.108
Body fat percentage	0.015	0.382	0.190	0.045	0.036	0.637	0.200	0.002
Fat mass index	<0.001	0.802	0.418	0.056	0.01	1.037	0.047	0.021
HOMA (n=342)								
Neck circumference	0.169	0.256	0.043	<0.001	0.073	0.604	0.160	<0.001
Body mass index	0.117	0.151	0.043	0.001	0.029	0.124	0.050	0.015
Waist circumference	0.162	0.066	0.019	<0.001	0.009	0.037	0.024	0.119
Waist-to-height ratio	0.032	8.029	3.110	0.011	0.003	-4.321	3.612	0.233
Body fat percentage	0.044	0.043	0.014	0.003	0.015	0.045	0.024	0.060
Fat mass index	0.021	0.069	0.033	0.039	<0.001	0.009	0.047	0.847
CRP (n=315)								
Neck circumference	0.055	0.351	0.094	<0.001	<0.001	-0.092	0.094	0.328
Body mass index	0.028	0.291	0.106	0.007	0.025	0.221	0.069	0.002
Waist circumference	0.033	0.120	0.040	0.003	0.002	-0.034	0.030	0.257
Waist-to-height ratio	0.015	8.941	4.762	0.047	<0.001	5.088	5.291	0.338
Body fat percentage	0.059	29.624	7.558	<0.001	0.060	15.668	4.388	<0.001
Fat mass index	0.065	0.226	0.059	<0.001	0.080	0.236	0.057	<0.001
C-3 (n=514)								
Neck circumference	0.035	3.164	0.728	<0.001	0.026	1.630	0.557	0.004
Body mass index	0.088	2.364	0.413	<0.001	0.050	1.644	0.412	<0.001
Waist circumference	0.063	1.133	0.220	<0.001	0.039	0.648	0.191	0.001
Waist-to-height ratio	0.118	206.454	30.784	<0.001	0.130	193.054	30.910	<0.001
Body fat percentage	0.140	0.915	0.129	<0.001	0.089	1.024	0.192	<0.001
Fat mass index	0.118	1,884	0.285	<0.001	0.158	2.784	0.382	<0.001
C-4 (n=514)								
Neck circumference	0.037	0.478	0.129	<0.001	0.024	0.539	0.189	0.005
Body mass index	0.061	0.671	0.141	<0.001	0.063	0.619	0.139	0.002
Waist circumference	0.041	0.241	0.055	<0.001	0.031	0.271	0.065	<0.001
Waist-to-height ratio	0.067	53.401	10.570	<0.001	0.99	56.768	10.655	<0.001
Body fat percentage	0.118	0.277	0.043	<0.001	0.99	0.36	0.065	<0.001
Fat mass index	0.098	0.574	0.094	<0.001	0.145	0.869	0.132	<0.001

Significant results are in **bold** ($p < 0.05$).

β indicates estimated unstandardized regression coefficient; SE, standard error.

All analyses were controlled for age and Tanner stage.

Supplementary table 3. Multiple linear regression analyses of interleukin 6 (IL-6, pg/mJ) leptin (ng/mL), adiponectin (µg/mL), and visfatin (ng/mL) with anthropometric and body composition indices.

	Boys				Girls			
	Adjusted	β	SE	P	Adjusted	β	SE	P
<i>Independent variables</i>								
IL-6 (n=502)								
Neck circumference	<0.001	-0.200	0.527	0.705	0.003	-1.552	1.139	0.174
Body mass index	<0.001	-0.106	0.590	0.857	<0.001	-0.753	1.001	0.453
Waist circumference	<0.001	-0.030	0.225	0.893	0.001	-0.425	0.391	0.279
Waist-to-height ratio	0.028	139.795	43.662	0.002	0.001	77.657	65.893	0.240
Body fat percentage	<0.001	0.255	0.183	0.164	<0.001	0.325	0.448	0.469
Fat mass index	0.012	0.739	0.384	0.048	0.007	1.402	0.831	0.093
Leptin (n=499)								
Neck circumference	0.060	713.142	155.007	<0.001	0.179	1927.779	252.179	<0.001
Body mass index	0.165	1158.997	89.388	<0.001	0.374	1747.644	139.514	<0.001
Waist circumference	0.089	495.536	40.142	<0.001	0.269	554.476	54.713	<0.001
Waist-to-height ratio	0.286	66804.453	5902.475	<0.001	0.208	84803.472	9319.467	<0.001
Body fat percentage	0.242	300.358	26.911	<0.001	0.368	668.546	52.889	<0.001
Fat mass index	0.289	612.946	56.721	<0.001	0.261	1183.717	113.155	<0.001
Adiponectin (n=506)								
Neck circumference	0.049	-0.357	0.084	<0.001	0.036	-0.463	0.138	<0.001
Body mass index	0.051	-0.282	0.110	0.010	0.042	-0.371	0.102	<0.001
Waist circumference	0.066	-0.175	0.036	<0.001	0.038	-0.162	0.047	0.001
Waist-to-height ratio	0.030	-23.791	7.015	0.001	0.036	-26.967	7.972	0.001
Body fat percentage	0.016	-0.045	0.032	0.016	0.047	-0.186	0.049	<0.001
Fat mass index	0.001	-0.100	0.0067	0.135	0.032	-0.319	0.101	0.002
TNF- α (n=478)								
Neck circumference	<0.001	1.058	1.182	0.539	0.016	-2.052	3.976	0.413
Body mass index	0.001	2.915	1.199	0.628	0.001	-5.176	1.887	0.459
Waist circumference	0.003	0.366	0.526	0.541	0.003	-0.539	0.968	0.409
Waist-to-height ratio	<0.001	11.347	7.602	0.881	<0.001	8.959	6.398	0.926
Body fat percentage	<0.001	-0.104	0.101	0.743	0.002	-0.466	4.619	0.460
Fat mass index	0.002	-0.290	0.632	0.662	0.001	0.114	1.840	0.924
Visfatin (n=324)								
Neck circumference	0.107	-0.100	0.025	<0.001	0.012	-0.046	0.030	0.124
Body mass index	0.026	-0.005	0.033	0.876	<0.001	-0.019	0.024	0.421
Waist circumference	0.093	-0.017	0.015	0.264	<0.001	-0.005	0.011	0.627
Waist-to-height ratio	0.010	1.263	2.136	0.555	0.012	2.689	1.736	0.124
Body fat percentage	<0.001	0.006	0.011	0.606	<0.001	-0.004	0.011	0.722
Fat mass index	0.057	0.025	0.022	0.273	0.002	0.022	0.024	0.278

Significant results are in **bold** ($p < 0.05$).

β indicates estimated unstandardized regression coefficient; SE, standard error.

All analyses were controlled for age and Tanner stage.

Supplementary table 4. Multiple linear regression analyses of cardiovascular risk score with anthropometric and body composition indices.

	Boys				Girls			
	Adjusted	β	SE	P	Adjusted	β	SE	P
<i>Independent variables</i>	Clustered CVD risk factor (n=315)							
Neck circumference	0.130	0.287	0.103	<0.001	0.207	0.834	0.248	<0.001
Body mass index	0.095	0.201	0.104	<0.001	0.111	0.432	0.095	<0.001
Waist circumference	0.125	0.175	0.027	<0.001	0.073	0.141	0.028	<0.001
Waist-to-height ratio	0.175	34.634	7.176	<0.001	0.174	21.415	6.394	<0.001
Body fat percentage	0.113	0.119	0.033	<0.001	0.143	0.194	0.042	<0.001
Fat mass index	0.109	0.268	0.076	<0.001	0.290	0.419	0.088	<0.001

Significant results are in **bold** ($p < 0.05$).

β indicates estimated unstandardized regression coefficient; SE, standard error.

All analyses were controlled for age and Tanner stage.