

Supplementary materials

The associations of muscle mass with glucose and lipid metabolism are influenced by body fat accumulation in children and adolescents

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Text S1. List of investigators of the China Child and Adolescent Cardiovascular Health

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Table S1. General characteristics in boys and girls, stratified by muscle-fat composition

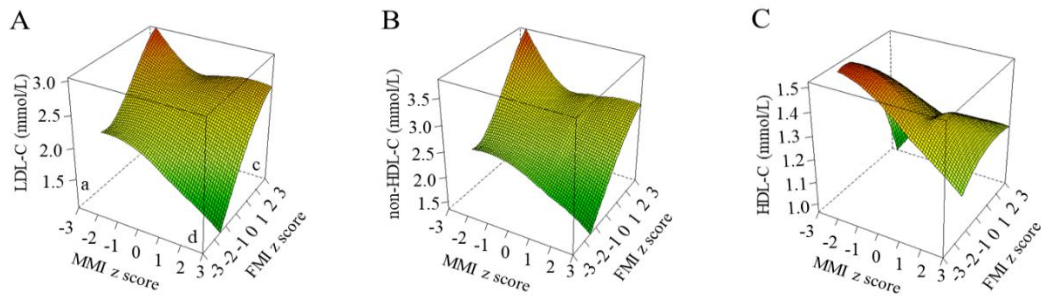
Sex	Characteristics	Total	Normal muscle-nromal fat	High muscle-normal fat	Normal muscle-high fat	High muscle-high fat	<i>P</i> ^a
Boys							
	Family income (\$)						0.519
	< 9400	1457(32.7)	1116(32.3)	87(30.9)	114(36.0)	140(34.7)	
	9400 - 23999	776(17.4)	587(17.0)	57(20.2)	54(17.0)	78(19.3)	
	≥ 24000	343(7.7)	269(7.8)	24(8.5)	25(7.9)	25(6.2)	
	Spermarche	622(13.9)	503(14.6)	29(10.3)	37(11.7)	53(13.1)	0.037
	Physical inactivity (> 1h/d)	574(12.9)	443(12.8)	42(14.9)	29(9.1)	60(14.9)	0.095
	Sedentary behavior (< 2h/d)	1890(42.4)	1464(42.4)	118(41.8)	142(44.8)	166(41.1)	0.368
	Smoking	526(11.8)	425(12.3)	36(12.8)	22(6.9)	43(10.6)	0.022
	Drinking	1107(24.8)	869(25.1)	70(24.8)	70(22.1)	98(24.3)	0.476
Girls							
	Family income (\$)						0.670
	< 9400	1609(36.2)	1251(35.5)	117(38.7)	118(44.2)	123(35.1)	
	9400 - 23999	747(16.8)	583(16.5)	44(14.6)	46(17.2)	74(21.1)	
	≥ 24000	307(6.9)	244(6.9)	19(6.3)	20(7.5)	24(6.9)	
	Menarche	2124(47.8)	1692(48.0)	127(42.1)	129(48.3)	176(50.3)	0.095
	Physical inactivity (> 1h/d)	369(8.3)	297(8.4)	23(7.6)	18(6.7)	31(8.9)	0.742
	Sedentary behavior (< 2h/d)	1909(42.9)	1488(42.2)	144(47.7)	127(47.6)	150(42.9)	0.461
	Smoking	207(4.7)	158(4.5)	15(5.0)	8(3.0)	26(7.4)	0.050
	Drinking	827(18.6)	667(18.9)	53(17.5)	41(15.4)	66(18.9)	0.299

Nromal fat, fat mass index z score < 1; Normal muscle, muscle mass index z score < 1; High fat, fat mass index z score ≥ 1; High muscle, muscle mass index z score ≥ 1.

Data are presented as numbers (%).

^a*P* value from χ^2 test for categorical variables, comparing differences among four groups.

Boys



Girls

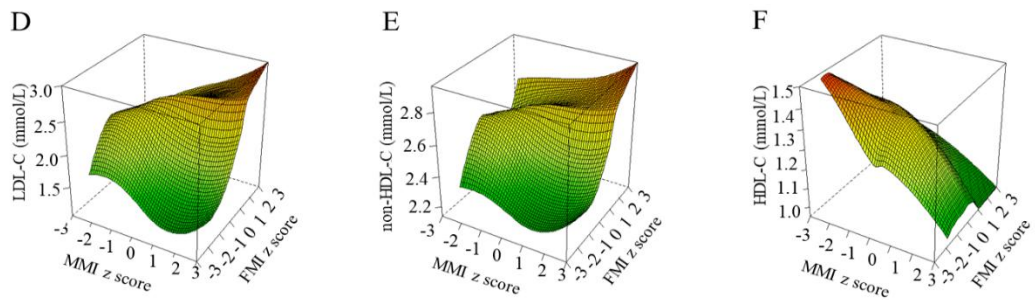


Figure S1 LDL-C, HDL-C, and non-HDL-c levels at different muscle-fat compositions in boys and girls. FMI, fat mass index; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; MMI, muscle mass index; non-HDL-C, non-high-density lipoprotein cholesterol. Three-dimensional surface plot of LDL-C, HDL-C, and non-HDL-C levels according to muscle-fat composition. (a) Low muscle mass and low-fat mass; (b) Low muscle mass and high-fat mass; (c) high muscle mass and high-fat mass; (d) high muscle mass and low-fat mass. Fat mass index and muscle mass index were age- and sex-specific z-score transformed. (A) LDL-C level in boys; (B) non-HDL-C level in boys; (C) HDL-C level in boys; (D) LDL-C level in girls; (E) non-HDL-C level in girls; (F) HDL-C level in girls.

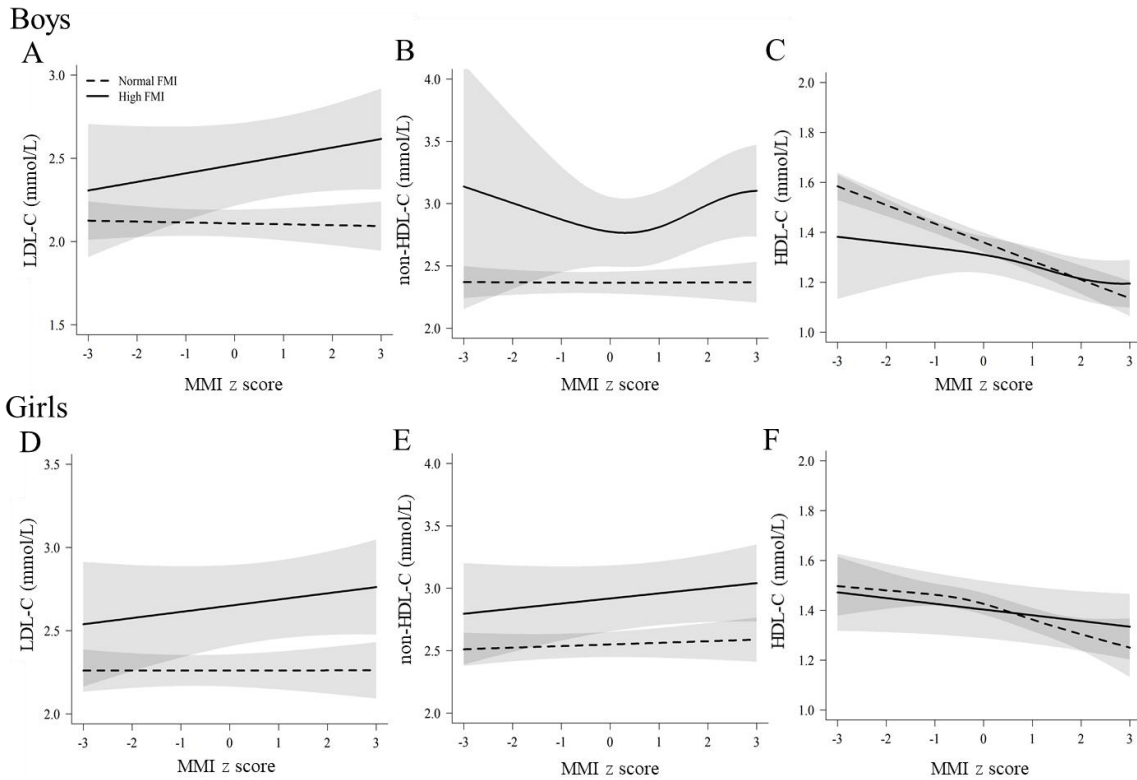


Figure S2 Relations of muscle mass with LDL-C, HDL-C, and non-HDL-c in boys and girls, stratified by fat mass levels. FMI, fat mass index; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; MMI, muscle mass index; non-HDL-C, non-high-density lipoprotein cholesterol. Normal FMI: fat mass index z score < 1; high FMI: fat mass index z score \geq 1. Solid lines denote high FMI; dotted lines denote normal FMI; shadow parts indicate 95% CIs. Model adjusted for age, family income, puberty development, physical activity, sedentary activity, drinking alcohol, smoking status. Fat mass index and muscle mass index were age- and sex-specific z-score transformed. (A) The relationship between muscle mass and LDL-C in boys; (B) The relationship between muscle mass and non-HDL-C in boys; (C) The relationship between muscle mass and HDL-C in boys; (D) The relationship between muscle mass and LDL-C in girls; (E) The relationship between muscle mass and non-HDL-C in girls; (F) The relationship between muscle mass and HDL-C in girls.

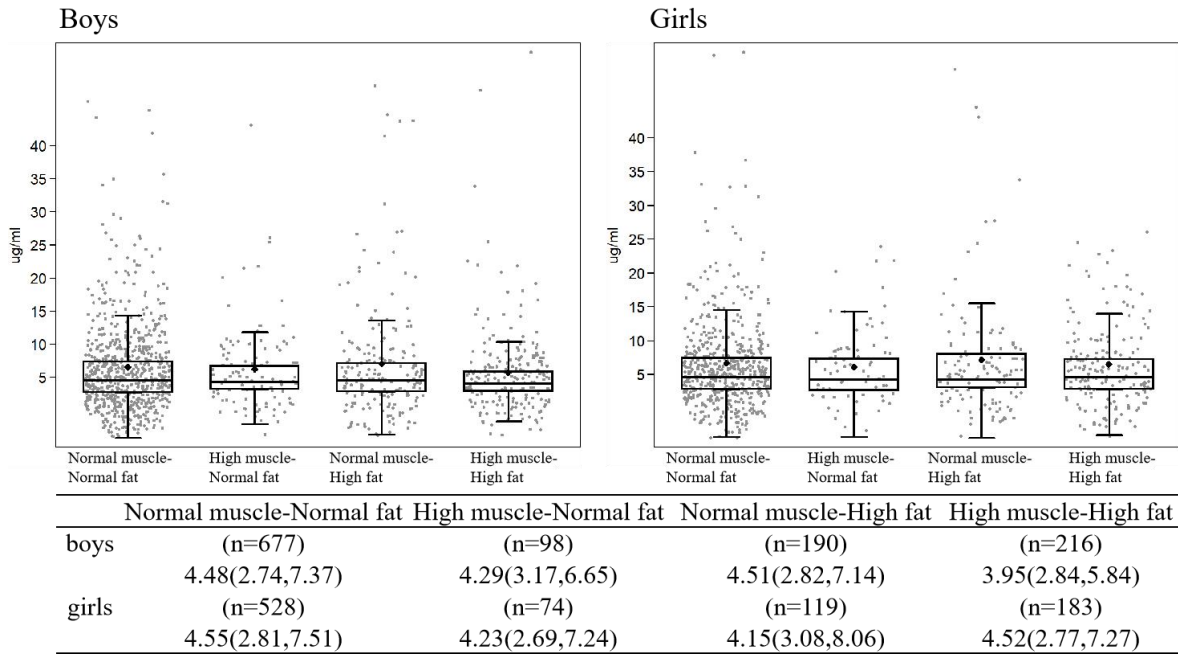


Figure S3 Medians (IQRs) of adiponectin under different muscle-fat compositions. A total of 2085 samples containing adiponectin data were analyzed. Normal fat, fat mass index z score < 1; Normal muscle, muscle mass index z score < 1; High fat, fat mass index z score \geq 1; High muscle, muscle mass index z score \geq 1. Box plots and means (black diamond) show the distribution of adiponectin under different muscle-fat compositions. The table shows the values of the median and quartiles under different muscle-fat compositions.